

# KOENIG-expander® CV PLUGS

## THE WORLD'S LEADING SEALING SYSTEM

2011



JOINED TO LAST.

## Expander Plugs – CV

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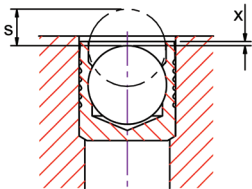
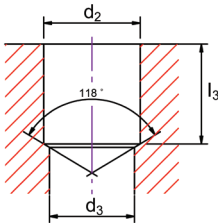
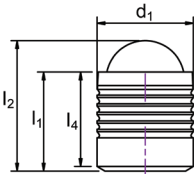
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Expander Plugs – CV

CV 143 - English

Material  
Sleeve: Aluminum 2024-T4, QQ-A 225/6  
Ball: Stainless Steel, AISI 302/304

Finish  
Anodized Green, MIL-A-8625: Type II, Class 2  
Wax film lubrication (diameter dependant)



CV 143 Series – Anodized Aluminum Sleeve, 302/304 Stainless Steel Ball

Dimensions listed in inches

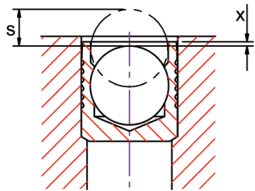
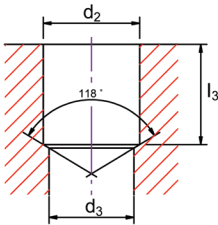
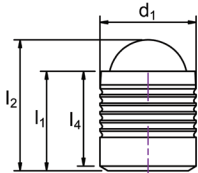
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CV 143-156	0.156	0.158	(.21)	0.146	0.1562	0.130	0.149	0.008	0.053
CV 143-187	0.187	0.217	(.27)	0.205	0.1875	0.160	0.208	0.010	0.066
CV 143-218	0.218	0.217	(.28)	0.205	0.2187	0.190	0.208	0.010	0.078
CV 143-250	0.250	0.256	(.34)	0.244	0.2500	0.220	0.247	0.010	0.094
CV 143-281	0.281	0.296	(.40)	0.284	0.2812	0.250	0.287	0.010	0.110
CV 143-312	0.312	0.335	(.46)	0.323	0.3125	0.281	0.326	0.010	0.129
CV 143-343	0.343	0.394	(.52)	0.382	0.3437	0.312	0.385	0.010	0.140
CV 143-375	0.375	0.394	(.54)	0.382	0.3750	0.343	0.385	0.010	0.153
CV 143-406	0.406	0.434	(.59)	0.422	0.4062	0.375	0.425	0.010	0.162
CV 143-437	0.437	0.512	(.68)	0.500	0.4375	0.406	0.503	0.010	0.166
CV 143-468	0.468	0.512	(.71)	0.500	0.4687	0.437	0.503	0.010	0.199
CV 143-562	0.562	0.591	(.82)	0.567	0.5625	0.510	0.570	0.010	0.233
CV 143-625	0.625	0.669	(.91)	0.646	0.6250	0.562	0.649	0.010	0.252
CV 143-687	0.687	0.748	(1.03)	0.724	0.6875	0.625	0.727	0.010	0.289
CV 143-750	0.750	0.866	(1.18)	0.842	0.7500	0.688	0.845	0.010	0.317
CV 143-875	0.875	0.984	(1.35)	0.960	0.8750	0.813	0.963	0.010	0.354

Expander Plugs – CV

CV 163 - English

Material  
Sleeve: Aluminum 2024-T4, QQ-A 225/6  
Ball: Stainless Steel, AISI 302/304

Finish  
Allodined Chromate, MIL-C-5541  
Wax film lubrication (diameter dependant)



CV 163 Series – Allodined Aluminum Sleeve, 302/304 Stainless Steel Ball

Dimensions listed in inches

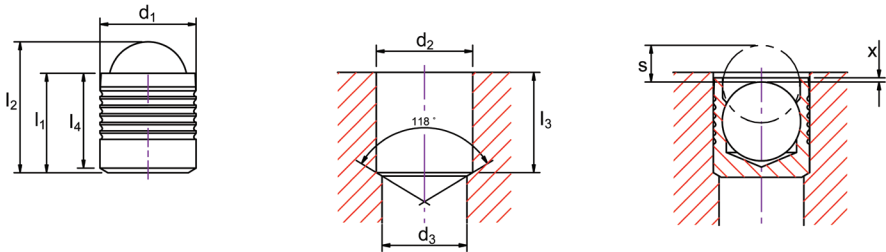
Part Number	$\varnothing d_1$	$l_1$ $\pm .005$	$l_2$ Ref.	$l_4$ $\pm .005$	$\varnothing d_2$ $+ .004/-0$	$\varnothing d_3$ MAX.	$l_3$ MIN.	$x$ $\pm .004$	$s$ $\pm .008$
CV 163-156	0.156	0.158	(.21)	0.146	0.1562	0.130	0.149	0.008	0.053
CV 163-187	0.187	0.217	(.27)	0.205	0.1875	0.160	0.208	0.010	0.066
CV 163-218	0.218	0.217	(.28)	0.205	0.2187	0.190	0.208	0.010	0.078
CV 163-250	0.250	0.256	(.34)	0.244	0.2500	0.220	0.247	0.010	0.094
CV 163-281	0.281	0.296	(.40)	0.284	0.2812	0.250	0.287	0.010	0.110
CV 163-312	0.312	0.335	(.46)	0.323	0.3125	0.281	0.326	0.010	0.129
CV 163-343	0.343	0.394	(.52)	0.382	0.3437	0.312	0.385	0.010	0.140
CV 163-375	0.375	0.394	(.54)	0.382	0.3750	0.343	0.385	0.010	0.153
CV 163-406	0.406	0.434	(.59)	0.422	0.4062	0.375	0.425	0.010	0.162
CV 163-437	0.437	0.512	(.68)	0.500	0.4375	0.406	0.503	0.010	0.166
CV 163-468	0.468	0.512	(.71)	0.500	0.4687	0.437	0.503	0.010	0.199
CV 163-562	0.562	0.591	(.82)	0.567	0.5625	0.510	0.570	0.010	0.233
CV 163-625	0.625	0.669	(.91)	0.646	0.6250	0.562	0.649	0.010	0.252
CV 163-687	0.687	0.748	(1.03)	0.724	0.6875	0.625	0.727	0.010	0.289
CV 163-750	0.750	0.866	(1.18)	0.842	0.7500	0.688	0.845	0.010	0.317
CV 163-875	0.875	0.984	(1.35)	0.960	0.8750	0.813	0.963	0.010	0.354

Expander Plugs – CV

CV 173 - English

Material  
Sleeve: Aluminum 2024-T4, QQ-A 225/6  
Ball: Stainless Steel, AISI 302/304

Finish  
–  
Wax film lubrication (diameter dependant)



CV 173 Series – Plain Aluminum Sleeve, 302/304 Stainless Steel Ball

Dimensions listed in inches

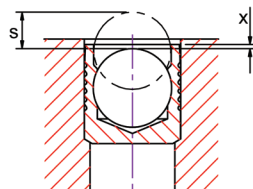
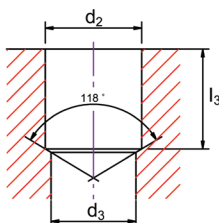
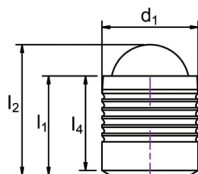
Part Number	$\varnothing d_1$	$l_1$ $\pm .005$	$l_2$ Ref.	$l_4$ $\pm .005$	$\varnothing d_2$ $+ .004/-0$	$\varnothing d_3$ MAX.	$l_3$ MIN.	$x$ $\pm .004$	$s$ $\pm .008$
CV 173-156	0.156	0.158	(.21)	0.146	0.1562	0.130	0.149	0.008	0.053
CV 173-187	0.187	0.217	(.27)	0.205	0.1875	0.160	0.208	0.010	0.066
CV 173-218	0.218	0.217	(.28)	0.205	0.2187	0.190	0.208	0.010	0.078
CV 173-250	0.250	0.256	(.34)	0.244	0.2500	0.220	0.247	0.010	0.094
CV 173-281	0.281	0.296	(.40)	0.284	0.2812	0.250	0.287	0.010	0.110
CV 173-312	0.312	0.335	(.46)	0.323	0.3125	0.281	0.326	0.010	0.129
CV 173-343	0.343	0.394	(.52)	0.382	0.3437	0.312	0.385	0.010	0.140
CV 173-375	0.375	0.394	(.54)	0.382	0.3750	0.343	0.385	0.010	0.153
CV 173-406	0.406	0.434	(.59)	0.422	0.4062	0.375	0.425	0.010	0.162
CV 173-437	0.437	0.512	(.68)	0.500	0.4375	0.406	0.503	0.010	0.166
CV 173-468	0.468	0.512	(.71)	0.500	0.4687	0.437	0.503	0.010	0.199
CV 173-562	0.562	0.591	(.82)	0.567	0.5625	0.510	0.570	0.010	0.233
CV 173-625	0.625	0.669	(.91)	0.646	0.6250	0.562	0.649	0.010	0.252
CV 173-687	0.687	0.748	(1.03)	0.724	0.6875	0.625	0.727	0.010	0.289
CV 173-750	0.750	0.866	(1.18)	0.842	0.7500	0.688	0.845	0.010	0.317
CV 173-875	0.875	0.984	(1.35)	0.960	0.8750	0.813	0.963	0.010	0.354

## Expander Plugs – CV

### CV 531 - English

Material  
Sleeve: Stainless steel (303), ASTM A582  
Ball: Bearing Steel, Heat Treated

Finish  
-  
Black Oxide & Wax film lubrication (diameter dependant)



### CV 531 Series – 303 Stainless Steel Sleeve, 302/304 Bearing Steel Ball

*Dimensions listed in inches*

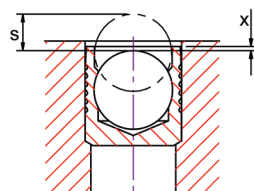
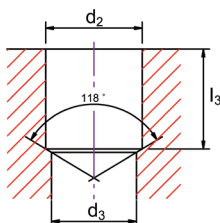
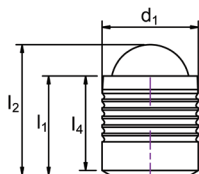
Part Number	$\varnothing d_1$	$l_1$ $\pm .005$	$l_2$ Ref.	$l_4$ $\pm .005$	$\varnothing d_2$ $+ .004/-0$	$\varnothing d_3$ MAX.	$l_3$ MIN.	x $\pm .004$	s $\pm .008$
CV 531-156	0.156	0.158	(.21)	0.146	0.1562	0.130	0.149	0.008	0.053
CV 531-187	0.187	0.217	(.27)	0.205	0.1875	0.160	0.208	0.010	0.066
CV 531-218	0.218	0.217	(.28)	0.205	0.2187	0.190	0.208	0.010	0.078
CV 531-250	0.250	0.256	(.34)	0.244	0.2500	0.220	0.247	0.010	0.094
CV 531-281	0.281	0.296	(.40)	0.284	0.2812	0.250	0.287	0.010	0.110
CV 531-312	0.312	0.335	(.46)	0.323	0.3125	0.281	0.326	0.010	0.129
CV 531-343	0.343	0.394	(.52)	0.382	0.3437	0.312	0.385	0.010	0.140
CV 531-375	0.375	0.394	(.54)	0.382	0.3750	0.343	0.385	0.010	0.153
CV 531-406	0.406	0.434	(.59)	0.422	0.4062	0.375	0.425	0.010	0.162
CV 531-437	0.437	0.512	(.68)	0.500	0.4375	0.406	0.503	0.010	0.166
CV 531-468	0.468	0.512	(.71)	0.500	0.4687	0.437	0.503	0.010	0.199
CV 531-562	0.562	0.591	(.82)	0.567	0.5625	0.510	0.570	0.010	0.233
CV 531-625	0.625	0.669	(.91)	0.646	0.6250	0.562	0.649	0.010	0.252
CV 531-687	0.687	0.748	(1.03)	0.724	0.6875	0.625	0.727	0.010	0.289
CV 531-750	0.750	0.866	(1.18)	0.842	0.7500	0.688	0.845	0.010	0.317
CV 531-875	0.875	0.984	(1.35)	0.960	0.8750	0.813	0.963	0.010	0.354

## Expander Plugs – CV

### CV 533 - English

**Material**  
Sleeve: Stainless steel (303), ASTM A582  
Ball: Stainless steel, AISI 302/304

**Finish**  
-  
Wax film lubrication (diameter dependant)



### CV 533 Series – 303 Stainless Steel Sleeve, 302/304 Stainless Steel Ball

*Dimensions listed in inches*

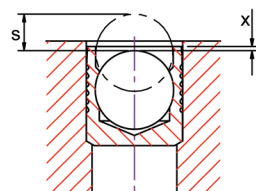
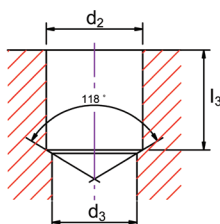
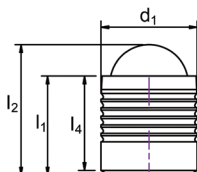
Part Number	$\varnothing d_1$	$l_1$ $\pm .005$	$l_2$ Ref.	$l_4$ $\pm .005$	$\varnothing d_2$ $+ .004/-0$	$\varnothing d_3$ MAX.	$l_3$ MIN.	x $\pm .004$	s $\pm .008$
CV 533-156	0.156	0.158	(.21)	0.146	0.1562	0.130	0.149	0.008	0.053
CV 533-187	0.187	0.217	(.27)	0.205	0.1875	0.160	0.208	0.010	0.066
CV 533-218	0.218	0.217	(.28)	0.205	0.2187	0.190	0.208	0.010	0.078
CV 533-250	0.250	0.256	(.34)	0.244	0.2500	0.220	0.247	0.010	0.094
CV 533-281	0.281	0.296	(.40)	0.284	0.2812	0.250	0.287	0.010	0.110
CV 533-312	0.312	0.335	(.46)	0.323	0.3125	0.281	0.326	0.010	0.129
CV 533-343	0.343	0.394	(.52)	0.382	0.3437	0.312	0.385	0.010	0.140
CV 533-375	0.375	0.394	(.54)	0.382	0.3750	0.343	0.385	0.010	0.153
CV 533-406	0.406	0.434	(.59)	0.422	0.4062	0.375	0.425	0.010	0.162
CV 533-437	0.437	0.512	(.68)	0.500	0.4375	0.406	0.503	0.010	0.166
CV 533-468	0.468	0.512	(.71)	0.500	0.4687	0.437	0.503	0.010	0.199
CV 533-562	0.562	0.591	(.82)	0.567	0.5625	0.510	0.570	0.010	0.233
CV 533-625	0.625	0.669	(.91)	0.646	0.6250	0.562	0.649	0.010	0.252
CV 533-687	0.687	0.748	(1.03)	0.724	0.6875	0.625	0.727	0.010	0.289
CV 533-750	0.750	0.866	(1.18)	0.842	0.7500	0.688	0.845	0.010	0.317
CV 533-875	0.875	0.984	(1.35)	0.960	0.8750	0.813	0.963	0.010	0.354

## Expander Plugs – CV

### CV 588 - English

**Material**  
Sleeve: Stainless Steel (316), ASTM A580  
Ball: Stainless Steel, AISI 316

**Finish**  
Passivate, QQ-P-35C  
Wax film lubrication (diameter dependant)



### CV 588 Series – 316 Stainless Steel Sleeve, 316 Stainless Steel Ball

*Dimensions listed in inches*

Part Number	$\varnothing d_1$	$l_1$ ±.005	$l_2$ Ref.	$l_4$ ±.005	$\varnothing d_2$ +.004/-0	$\varnothing d_3$ MAX.	$l_3$ MIN.	$x$ ±.004	$s$ ±.008
CV 588-156	0.156	0.158	(.21)	0.146	0.1562	0.130	0.149	0.008	0.053
CV 588-187	0.187	0.217	(.27)	0.205	0.1875	0.160	0.208	0.010	0.066
CV 588-218	0.218	0.217	(.28)	0.205	0.2187	0.190	0.208	0.010	0.078
CV 588-250	0.250	0.256	(.34)	0.244	0.2500	0.220	0.247	0.010	0.094
CV 588-281	0.281	0.296	(.40)	0.284	0.2812	0.250	0.287	0.010	0.110
CV 588-312	0.312	0.335	(.46)	0.323	0.3125	0.281	0.326	0.010	0.129
CV 588-343	0.343	0.394	(.52)	0.382	0.3437	0.312	0.385	0.010	0.140
CV 588-375	0.375	0.394	(.54)	0.382	0.3750	0.343	0.385	0.010	0.153
CV 588-406	0.406	0.434	(.59)	0.422	0.4062	0.375	0.425	0.010	0.162
CV 588-437	0.437	0.512	(.68)	0.500	0.4375	0.406	0.503	0.010	0.166
CV 588-468	0.468	0.512	(.71)	0.500	0.4687	0.437	0.503	0.010	0.199
CV 588-562	0.562	0.591	(.82)	0.567	0.5625	0.510	0.570	0.010	0.233
CV 588-625	0.625	0.669	(.91)	0.646	0.6250	0.562	0.649	0.010	0.252
CV 588-687	0.687	0.748	(1.03)	0.724	0.6875	0.625	0.727	0.010	0.289
CV 588-750	0.750	0.866	(1.18)	0.842	0.7500	0.688	0.845	0.010	0.317
CV 588-875	0.875	0.984	(1.35)	0.960	0.8750	0.813	0.963	0.010	0.354

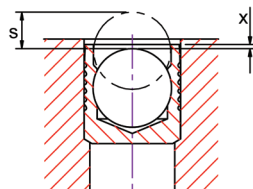
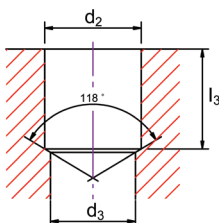
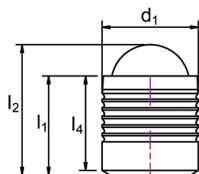


## Expander Plugs – CV

### CV 851 - English

**Material**  
**Sleeve:** Case Hardening Steel, ASTM A108  
**Ball:** Bearing Steel, Heat Treated

**Finish**  
**Zinc Chromate.** ASTM B633: Type III, Trivalent  
**Black Oxide & Wax film lubrication (diameter dependant)**



### CV 851 Series – Carbon Steel Sleeve, Bearing Steel Ball

*Dimensions listed in inches*

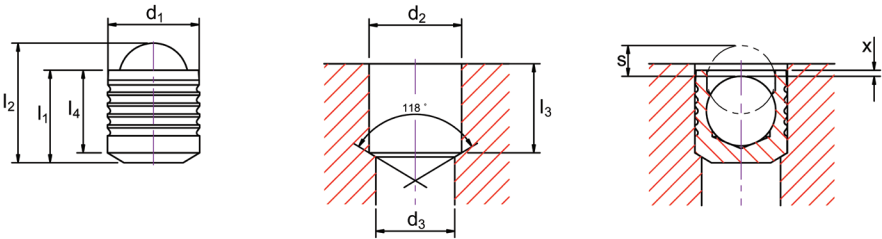
Part Number	$\varnothing d_1$	$l_1$ $\pm .005$	$l_2$ Ref.	$l_4$ $\pm .005$	$\varnothing d_2$ $+.004/-0$	$\varnothing d_3$ MAX.	$l_3$ MIN.	x $\pm .004$	s $\pm .008$
<b>CV 851-156</b>	0.156	0.158	(.21)	0.146	0.1562	0.130	0.149	0.008	0.053
<b>CV 851-187</b>	0.187	0.217	(.27)	0.205	0.1875	0.160	0.208	0.010	0.066
<b>CV 851-218</b>	0.218	0.217	(.28)	0.205	0.2187	0.190	0.208	0.010	0.078
<b>CV 851-250</b>	0.250	0.256	(.34)	0.244	0.2500	0.220	0.247	0.010	0.094
<b>CV 851-281</b>	0.281	0.296	(.40)	0.284	0.2812	0.250	0.287	0.010	0.110
<b>CV 851-312</b>	0.312	0.335	(.46)	0.323	0.3125	0.281	0.326	0.010	0.129
<b>CV 851-343</b>	0.343	0.394	(.52)	0.382	0.3437	0.312	0.385	0.010	0.140
<b>CV 851-375</b>	0.375	0.394	(.54)	0.382	0.3750	0.343	0.385	0.010	0.153
<b>CV 851-406</b>	0.406	0.434	(.59)	0.422	0.4062	0.375	0.425	0.010	0.162
<b>CV 851-437</b>	0.437	0.512	(.68)	0.500	0.4375	0.406	0.503	0.010	0.166
<b>CV 851-468</b>	0.468	0.512	(.71)	0.500	0.4687	0.437	0.503	0.010	0.199
<b>CV 851-562</b>	0.562	0.591	(.82)	0.567	0.5625	0.510	0.570	0.010	0.233
<b>CV 851-625</b>	0.625	0.669	(.91)	0.646	0.6250	0.562	0.649	0.010	0.252
<b>CV 851-687</b>	0.687	0.748	(1.03)	0.724	0.6875	0.625	0.727	0.010	0.289
<b>CV 851-750</b>	0.750	0.866	(1.18)	0.842	0.7500	0.688	0.845	0.010	0.317
<b>CV 851-875</b>	0.875	0.984	(1.35)	0.960	0.8750	0.813	0.963	0.010	0.354

Expander Plugs – CV

CV 143 S - English Short

Material  
Sleeve: Aluminum 2024-T4, QQ-A 225/6  
Ball: Stainless Steel, AISI 302/304

Finish  
Anodized Green, MIL-A-8625: Type II, Class 2  
Wax film lubrication (diameter dependant)



CV 143 Series – Anodized Aluminum Sleeve, 302/304 Stainless Steel Ball

Dimensions listed in inches

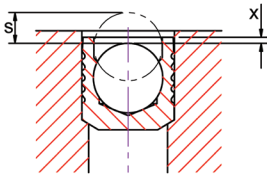
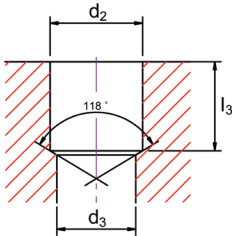
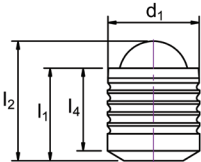
Part Number	$\varnothing d_1$	$l_1$ $\pm .005$	$l_2$ Ref.	$l_4$ $\pm .005$	$\varnothing d_2$ $+ .004/-0$	$\varnothing d_3$ MAX.	$l_3$ MIN.	x $\pm .004$	s $\pm .008$
CV 143-093S	0.093	0.098	(.12)	0.078	0.0937	0.070	0.081	0.005	0.029
CV 143-125S	0.125	0.125	(.16)	0.110	0.1250	0.100	0.113	0.007	0.042
CV 143-156S	0.156	0.125	(.17)	0.110	0.1562	0.130	0.113	0.000	0.040
CV 143-187S	0.187	0.187	(.24)	0.167	0.1875	0.160	0.170	0.010	0.066
CV 143-218S	0.218	0.187	(.25)	0.167	0.2187	0.190	0.170	0.000	0.063
CV 143-250S	0.250	0.225	(.30)	0.193	0.2500	0.220	0.196	0.000	0.083
CV 143-281S	0.281	0.225	(.35)	0.230	0.2812	0.250	0.233	0.000	0.091
CV 143-312S	0.312	0.280	(.39)	0.252	0.3125	0.281	0.255	0.000	0.107
CV 143-343S	0.343	0.307	(.43)	0.272	0.3437	0.312	0.275	0.000	0.118
CV 143-406S	0.406	0.365	(.52)	0.305	0.4062	0.375	0.308	0.010	0.143

Expander Plugs – CV

CV 163 S - English Short

Material  
Sleeve: Aluminum 2024-T4, QQ-A 225/6  
Ball: Stainless Steel, AISI 302/304

Finish  
Allodined Chromate Conversion, MIL-C-5541  
Wax film lubrication (diameter dependant)



CV 163 Series – Allodined Aluminum Sleeve, 302/304 Stainless Steel Ball

Dimensions listed in inches

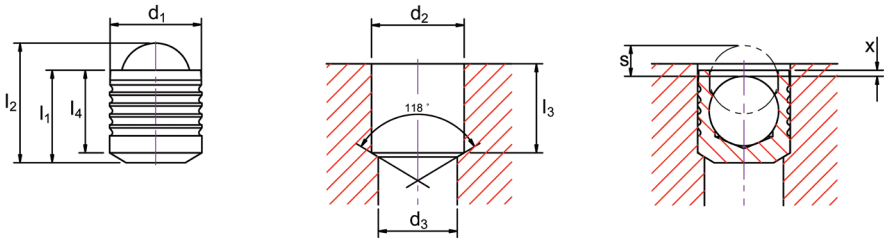
Part Number	$\varnothing d_1$	$l_1$ $\pm .005$	$l_2$ Ref.	$l_4$ $\pm .005$	$\varnothing d_2$ $+ .004/-0$	$\varnothing d_3$ MAX.	$l_3$ MIN.	$x$ $\pm .004$	$s$ $\pm .008$
CV 163-093S	0.093	0.098	(.12)	0.078	0.0937	0.070	0.081	0.005	0.029
CV 163-125S	0.125	0.125	(.16)	0.110	0.1250	0.100	0.113	0.007	0.042
CV 163-156S	0.156	0.125	(.17)	0.110	0.1562	0.130	0.113	0.000	0.040
CV 163-187S	0.187	0.187	(.24)	0.167	0.1875	0.160	0.170	0.010	0.066
CV 163-218S	0.218	0.187	(.25)	0.167	0.2187	0.190	0.170	0.000	0.063
CV 163-250S	0.250	0.225	(.30)	0.193	0.2500	0.220	0.196	0.000	0.083
CV 163-281S	0.281	0.225	(.35)	0.230	0.2812	0.250	0.233	0.000	0.091
CV 163-312S	0.312	0.280	(.39)	0.252	0.3125	0.281	0.255	0.000	0.107
CV 163-343S	0.343	0.307	(.43)	0.272	0.3437	0.312	0.275	0.000	0.118
CV 163-406S	0.406	0.365	(.52)	0.305	0.4062	0.375	0.308	0.010	0.143

Expander Plugs – CV

CV 173 S - English Short

Material  
Sleeve: Aluminum 2024-T4, QQ-A 225/6  
Ball: Stainless Steel, AISI 302/304

Finish  
-  
Wax film lubrication (diameter dependant)



CV 173 Series – Plain Aluminum Sleeve, 302/304 Stainless Steel Ball

Dimensions listed in inches

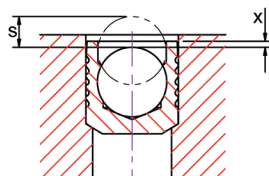
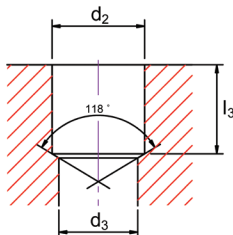
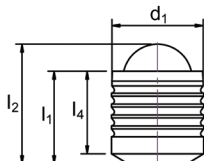
Part Number	$\varnothing d_1$	$l_1$ $\pm .005$	$l_2$ Ref.	$l_4$ $\pm .005$	$\varnothing d_2$ $+ .004/-0$	$\varnothing d_3$ MAX.	$l_3$ MIN.	x $\pm .004$	S $\pm .008$
CV 173-093S	0.093	0.098	(.12)	0.078	0.0937	0.070	0.081	0.005	0.029
CV 173-125S	0.125	0.125	(.16)	0.110	0.1250	0.100	0.113	0.007	0.042
CV 173-156S	0.156	0.125	(.17)	0.110	0.1562	0.130	0.113	0.000	0.040
CV 173-187S	0.187	0.187	(.24)	0.167	0.1875	0.160	0.170	0.010	0.066
CV 173-218S	0.218	0.187	(.25)	0.167	0.2187	0.190	0.170	0.000	0.063
CV 173-250S	0.250	0.225	(.30)	0.193	0.2500	0.220	0.196	0.000	0.083
CV 173-281S	0.281	0.225	(.35)	0.230	0.2812	0.250	0.233	0.000	0.091
CV 173-312S	0.312	0.280	(.39)	0.252	0.3125	0.281	0.255	0.000	0.107
CV 173-343S	0.343	0.307	(.43)	0.272	0.3437	0.312	0.275	0.000	0.118
CV 173-406S	0.406	0.365	(.52)	0.305	0.4062	0.375	0.308	0.010	0.143

## Expander Plugs – CV

### CV 531 S - English Short

Material: Stainless Steel (303), ASTM A582  
Sleeve: Stainless Steel (303), ASTM A582  
Ball: Bearing Steel, Heat Treated

Finish: —  
Black Oxide & Wax film lubrication (diameter dependant)



### CV 531 S Series – 303 Stainless Steel Sleeve, Bearing Steel Ball

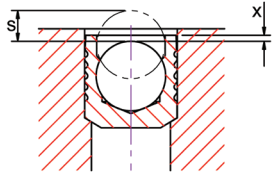
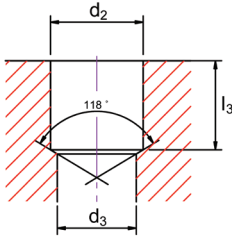
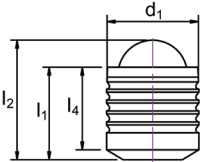
*Dimensions listed in inches*

Part Number	$\varnothing d_1$	$l_1$ $\pm .005$	$l_2$ Ref.	$l_4$ $\pm .005$	$\varnothing d_2$ $+.004/-0$	$\varnothing d_3$ MAX.	$l_3$ MIN.	x $\pm .004$	s $\pm .008$
<b>CV 531-093S</b>	0.093	0.098	(.12)	0.078	0.0937	0.070	0.081	0.005	0.029
<b>CV 531-125S</b>	0.125	0.125	(.16)	0.110	0.1250	0.100	0.113	0.007	0.042
<b>CV 531-156S</b>	0.156	0.125	(.17)	0.110	0.1562	0.130	0.113	0.000	0.040
<b>CV 531-187S</b>	0.187	0.187	(.24)	0.167	0.1875	0.160	0.170	0.010	0.066
<b>CV 531-218S</b>	0.218	0.187	(.25)	0.167	0.2187	0.190	0.170	0.000	0.063
<b>CV 531-250S</b>	0.250	0.225	(.30)	0.193	0.2500	0.220	0.196	0.000	0.083
<b>CV 531-281S</b>	0.281	0.225	(.35)	0.230	0.2812	0.250	0.233	0.000	0.091
<b>CV 531-312S</b>	0.312	0.280	(.39)	0.252	0.3125	0.281	0.255	0.000	0.107
<b>CV 531-343S</b>	0.343	0.307	(.43)	0.272	0.3437	0.312	0.275	0.000	0.118
<b>CV 531-406S</b>	0.406	0.365	(.52)	0.305	0.4062	0.375	0.308	0.010	0.143

Expander Plugs – CV

CV 533 S - English Short

Material	Finish
Sleeve: Stainless Steel (303), ASTM A582	-
Ball: Stainless Steel, AISI 302/304	Wax film lubrication (diameter dependant)



CV 533 S Series – 303 Stainless Steel Sleeve, 302/304 Stainless Steel Ball

Dimensions listed in inches

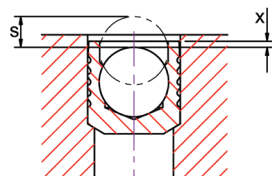
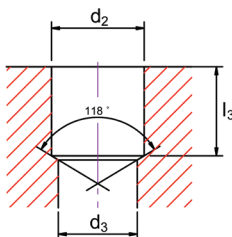
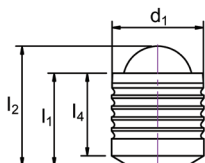
Part Number	$\varnothing d_1$	$l_1$ $\pm .005$	$l_2$ Ref.	$l_4$ $\pm .005$	$\varnothing d_2$ $+ .004/-0$	$\varnothing d_3$ MAX.	$l_3$ MIN.	$x$ $\pm .004$	$s$ $\pm .008$
CV 533-093S	0.093	0.098	(.12)	0.078	0.0937	0.070	0.081	0.005	0.029
CV 533-125S	0.125	0.125	(.16)	0.110	0.1250	0.100	0.113	0.007	0.042
CV 533-156S	0.156	0.125	(.17)	0.110	0.1562	0.130	0.113	0.000	0.040
CV 533-187S	0.187	0.187	(.24)	0.167	0.1875	0.160	0.170	0.010	0.066
CV 533-218S	0.218	0.187	(.25)	0.167	0.2187	0.190	0.170	0.000	0.063
CV 533-250S	0.250	0.225	(.30)	0.193	0.2500	0.220	0.196	0.000	0.083
CV 533-281S	0.281	0.225	(.35)	0.230	0.2812	0.250	0.233	0.000	0.091
CV 533-312S	0.312	0.280	(.39)	0.252	0.3125	0.281	0.255	0.000	0.107
CV 533-343S	0.343	0.307	(.43)	0.272	0.3437	0.312	0.275	0.000	0.118
CV 533-406S	0.406	0.365	(.52)	0.305	0.4062	0.375	0.308	0.010	0.143

## Expander Plugs – CV

### CV 588 S - English Short

Material  
Sleeve: Stainless Steel (316) ASTM A580  
Ball: Stainless Steel, AISI 316

Finish  
Passivate, QQ-P-35C  
Wax film lubrication (diameter dependant)



### CV 588 S Series – 316 Stainless Steel Sleeve, 316 Stainless Steel Ball

*Dimensions listed in inches*

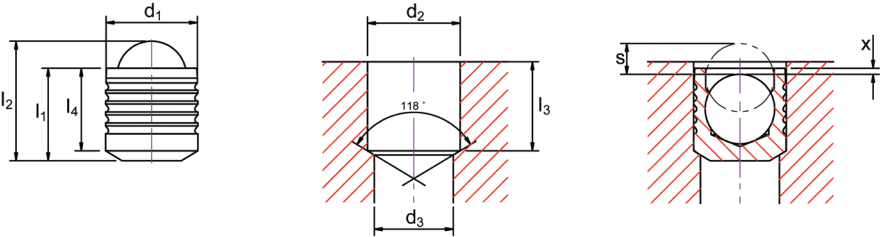
Part Number	$\varnothing d_1$	$l_1$ $\pm .005$	$l_2$ Ref.	$l_4$ $\pm .005$	$\varnothing d_2$ $+.004/-0$	$\varnothing d_3$ MAX.	$l_3$ MIN.	$X$ $\pm .004$	$S$ $\pm .008$
<b>CV 588-093S</b>	0.093	0.098	(.12)	0.078	0.0937	0.070	0.081	0.005	0.029
<b>CV 588-125S</b>	0.125	0.125	(.16)	0.110	0.1250	0.100	0.113	0.007	0.042
<b>CV 588-156S</b>	0.156	0.125	(.17)	0.110	0.1562	0.130	0.113	0.000	0.040
<b>CV 588-187S</b>	0.187	0.187	(.24)	0.167	0.1875	0.160	0.170	0.010	0.066
<b>CV 588-218S</b>	0.218	0.187	(.25)	0.167	0.2187	0.190	0.170	0.000	0.063
<b>CV 588-250S</b>	0.250	0.225	(.30)	0.193	0.2500	0.220	0.196	0.000	0.083
<b>CV 588-281S</b>	0.281	0.225	(.35)	0.230	0.2812	0.250	0.233	0.000	0.091
<b>CV 588-312S</b>	0.312	0.280	(.39)	0.252	0.3125	0.281	0.255	0.000	0.107
<b>CV 588-343S</b>	0.343	0.307	(.43)	0.272	0.3437	0.312	0.275	0.000	0.118
<b>CV 588-406S</b>	0.406	0.365	(.52)	0.305	0.4062	0.375	0.308	0.010	0.143

Expander Plugs – CV

CV 851 S - English Short

Material  
Sleeve: Case Hardening Steel ASTM A108  
Ball: Bearing Steel, Heat Treated

Finish  
Zinc Chromate ASTM B633 Type III, Trivalent  
Black Oxide & Wax film lubrication (diameter dependant)



CV 851 S Series – Carbon Steel Sleeve, Bearing Steel Ball

Dimensions listed in inches

Part Number	$\varnothing d_1$	$l_1$ $\pm 0.13$	$l_2$ Ref.	$l_4$ $\pm 0.13$	$\varnothing d_2$ $+ .004/-0$	$\varnothing d_3$ MAX.	$l_3$ MIN.	x $\pm 0.10$	s $\pm 0.2$
CV 851-093S	0.093	0.098	(.12)	0.078	0.0937	0.070	0.081	0.005	0.029
CV 851-125S	0.125	0.125	(.16)	0.110	0.1250	0.100	0.113	0.007	0.042
CV851-156S	0.156	0.125	(.17)	0.110	0.1562	0.130	0.113	0.000	0.040
CV 851-187S	0.187	0.187	(.24)	0.167	0.1875	0.160	0.170	0.010	0.066
CV 851-218S	0.218	0.187	(.25)	0.167	0.2187	0.190	0.170	0.000	0.063
CV 851-250S	0.250	0.225	(.30)	0.193	0.2500	0.220	0.196	0.000	0.083
CV 851-281S	0.281	0.225	(.35)	0.230	0.2812	0.250	0.233	0.000	0.091
CV 851-312S	0.312	0.280	(.39)	0.252	0.3125	0.281	0.255	0.000	0.107
CV 851-343S	0.343	0.307	(.43)	0.272	0.3437	0.312	0.275	0.000	0.118
CV 851-406S	0.406	0.365	(.52)	0.305	0.4062	0.375	0.308	0.010	0.143

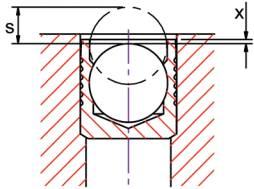
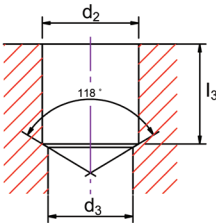
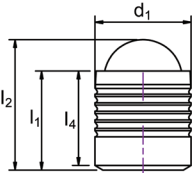


Expander Plugs – CV

CV 143 - Metric

Material  
Sleeve: Aluminum 2024-T4, QQ-A 225/6  
Ball: Stainless Steel, AISI 302/304

Finish  
Anodized Green, MIL-A-8625: Type II, Class 2  
Wax film lubrication (diameter dependant)



CV 143 Series (Metric) – Anodized Aluminum Plug, 302/304 Stainless Steel Ball Dimensions listed in millimeters

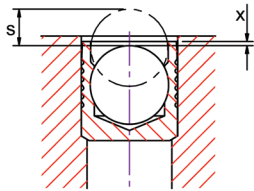
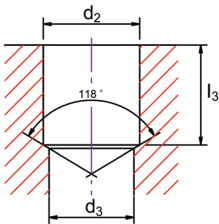
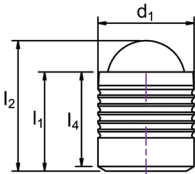
Part Number	$\varnothing d_1$	$l_1$ $\pm 0.13$	$l_2$ Ref.	$l_4$ $\pm 0.13$	$\varnothing d_2$ $+0.10/-0$	$\varnothing d_3$ MAX.	$l_3$ MIN.	$x$ $\pm 0.10$	$s$ $\pm 0.2$
CV 143-030	3.0	3.18	(4.1)	2.79	3.00	2.3	2.9	0.2	1.0
CV 143-040	4.0	4.00	(5.2)	3.70	4.00	3.3	3.8	0.2	1.4
CV 143-050	5.0	5.50	(7.0)	5.20	5.00	4.3	5.3	0.2	1.9
CV 143-060	6.0	6.50	(8.6)	6.20	6.00	5.3	6.3	0.2	2.3
CV 143-070	7.0	7.50	(10.1)	7.20	7.00	6.2	7.3	0.2	2.8
CV 143-080	8.0	8.50	(11.7)	8.20	8.00	7.2	8.3	0.2	3.4
CV 143-090	9.0	10.00	(13.7)	9.70	9.00	8.2	9.8	0.2	3.7
CV 143-100	10.0	11.00	(15.2)	10.70	10.00	9.2	10.8	0.2	4.2
CV 143-120	12.0	13.00	(18.00)	12.70	12.00	11.0	12.8	0.2	5.1
CV 143-140	14.0	15.00	(20.8)	14.40	14.00	13.0	14.5	0.2	5.9
CV 143-160	16.0	17.00	(23.7)	16.40	16.00	14.7	16.5	0.2	6.4
CV 143-180	18.0	19.00	(26.3)	18.40	18.00	16.7	18.5	0.2	7.2
CV 143-200	20.0	22.00	(30.5)	21.40	20.00	18.7	21.5	0.2	8.4
CV 143-220	22.0	25.00	(34.2)	24.40	22.00	20.7	24.5	0.2	9.5

Expander Plugs – CV

CV 163 - Metric

Material  
Sleeve: Aluminum 2024-T4, QQ-A 225/6  
Ball: Stainless Steel, AISI 302/304

Finish  
Allodined Chromate Conversion, MIL-C-5541  
Wax film lubrication (diameter dependant)



CV 163 Series (Metric) – Allodined Aluminum Sleeve, 302/304 Stainless Steel Ball *Dimensions listed in millimeters*

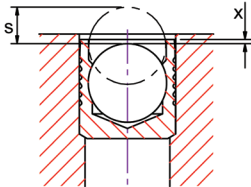
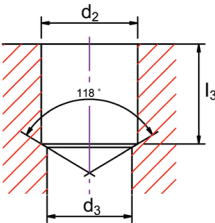
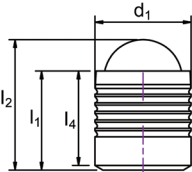
Part Number	$\varnothing d_1$	$l_1$ $\pm .005$	$l_2$ Ref.	$l_4$ $\pm .005$	$\varnothing d_2$ $+ .004/-0$	$\varnothing d_3$ MAX.	$l_3$ MIN.	x $\pm 0.10$	s $\pm 0.2$
CV 163-030	3.0	3.18	(4.1)	2.79	3.00	2.3	2.9	0.2	1.0
CV 163-040	4.0	4.00	(5.2)	3.70	4.00	3.3	3.8	0.2	1.4
CV 163-050	5.0	5.50	(7.0)	5.20	5.00	4.3	5.3	0.2	1.9
CV 163-060	6.0	6.50	(8.6)	6.20	6.00	5.3	6.3	0.2	2.3
CV 163-070	7.0	7.50	(10.1)	7.20	7.00	6.2	7.3	0.2	2.8
CV 163-080	8.0	8.50	(11.7)	8.20	8.00	7.2	8.3	0.2	3.4
CV 163-090	9.0	10.00	(13.7)	9.70	9.00	8.2	9.8	0.2	3.7
CV 163-100	10.0	11.00	(15.2)	10.70	10.00	9.2	10.8	0.2	4.2
CV 163-120	12.0	13.00	(18.00)	12.70	12.00	11.0	12.8	0.2	5.1
CV 163-140	14.0	15.00	(20.8)	14.40	14.00	13.0	14.5	0.2	5.9
CV 163-160	16.0	17.00	(23.7)	16.40	16.00	14.7	16.5	0.2	6.4
CV 163-180	18.0	19.00	(26.3)	18.40	18.00	16.7	18.5	0.2	7.2
CV 163-200	20.0	22.00	(30.5)	21.40	20.00	18.7	21.5	0.2	8.4
CV 163-220	22.0	25.00	(34.2)	24.40	22.00	20.7	24.5	0.2	9.5

Expander Plugs – CV

CV 173 - Metric

Material  
Sleeve: Aluminum 2024-T4, QQ-A 225/6  
Ball: Stainless Steel, AISI 302/304

Finish  
-  
Wax film lubrication (diameter dependant)



CV 173 Series (Metric) – Plain Aluminum Sleeve, 302/304 Stainless Steel Ball

Dimensions listed in millimeters

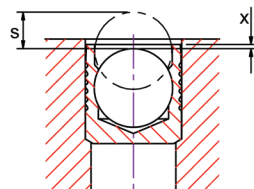
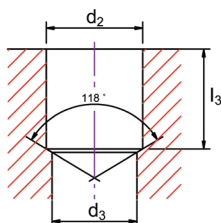
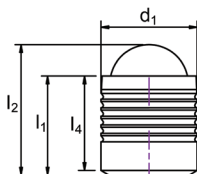
Part Number	$\varnothing d_1$	$l_1$ $\pm .005$	$l_2$ Ref.	$l_4$ $\pm .005$	$\varnothing d_2$ $+ .004/-0$	$\varnothing d_3$ MAX.	$l_3$ MIN.	x $\pm 0.10$	s $\pm 0.2$
CV 173-030	3.0	3.18	(4.1)	2.79	3.00	2.3	2.9	0.2	1.0
CV 173-040	4.0	4.00	(5.2)	3.70	4.00	3.3	3.8	0.2	1.4
CV 173-050	5.0	5.50	(7.0)	5.20	5.00	4.3	5.3	0.2	1.9
CV 173-060	6.0	6.50	(8.6)	6.20	6.00	5.3	6.3	0.2	2.3
CV 173-070	7.0	7.50	(10.1)	7.20	7.00	6.2	7.3	0.2	2.8
CV 173-080	8.0	8.50	(11.7)	8.20	8.00	7.2	8.3	0.2	3.4
CV 173-090	9.0	10.00	(13.7)	9.70	9.00	8.2	9.8	0.2	3.7
CV 173-100	10.0	11.00	(15.2)	10.70	10.00	9.2	10.8	0.2	4.2
CV 173-120	12.0	13.00	(18.00)	12.70	12.00	11.0	12.8	0.2	5.1
CV 173-140	14.0	15.00	(20.8)	14.40	14.00	13.0	14.5	0.2	5.9
CV 173-160	16.0	17.00	(23.7)	16.40	16.00	14.7	16.5	0.2	6.4
CV 173-180	18.0	19.00	(26.3)	18.40	18.00	16.7	18.5	0.2	7.2
CV 173-200	20.0	22.00	(30.5)	21.40	20.00	18.7	21.5	0.2	8.4
CV 173-220	22.0	25.00	(34.2)	24.40	22.00	20.7	24.5	0.2	9.5

## Expander Plugs – CV

### CV 588 - Metric

Material  
Sleeve: Stainless Steel (316), ASTM A580  
Ball: Stainless Steel, AISI 316

Finish  
Passivate, QQ-P-35C  
Wax film lubrication (diameter dependant)



### CV 588 Series (Metric) – 316 Stainless Steel Sleeve, 316 Stainless Steel Ball

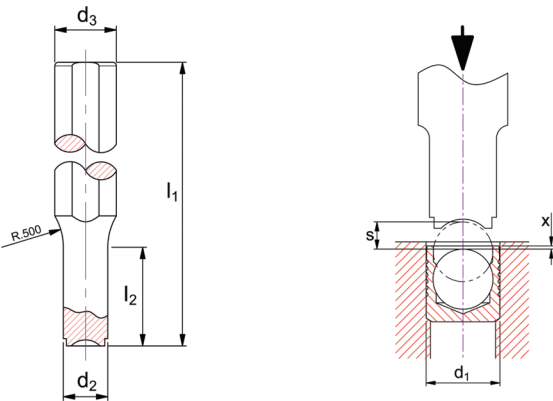
*Dimensions listed in millimeters*

Part Number	$\varnothing d_1$	$l_1$ $\pm .005$	$l_2$ Ref.	$l_4$ $\pm .005$	$\varnothing d_2$ $+.004/-0$	$\varnothing d_3$ MAX.	$l_3$ MIN.	x $\pm 0.10$	s $\pm 0.2$
CV 588-030	3.0	3.18	(4.1)	2.79	3.00	2.3	2.9	0.2	1.0
CV 588-040	4.0	4.00	(5.2)	3.70	4.00	3.3	3.8	0.2	1.4
CV 588-050	5.0	5.50	(7.0)	5.20	5.00	4.3	5.3	0.2	1.9
CV 588-060	6.0	6.50	(8.6)	6.20	6.00	5.3	6.3	0.2	2.3
CV 588-070	7.0	7.50	(10.1)	7.20	7.00	6.2	7.3	0.2	2.8
CV 588-080	8.0	8.50	(11.7)	8.20	8.00	7.2	8.3	0.2	3.4
CV 588-090	9.0	10.00	(13.7)	9.70	9.00	8.2	9.8	0.2	3.7
CV 588-100	10.0	11.00	(15.2)	10.70	10.00	9.2	10.8	0.2	4.2
CV 588-120	12.0	13.00	(18.00)	12.70	12.00	11.0	12.8	0.2	5.1
CV 588-140	14.0	15.00	(20.8)	14.40	14.00	13.0	14.5	0.2	5.9
CV 588-160	16.0	17.00	(23.7)	16.40	16.00	14.7	16.5	0.2	6.4
CV 588-180	18.0	19.00	(26.3)	18.40	18.00	16.7	18.5	0.2	7.2
CV 588-200	20.0	22.00	(30.5)	21.40	20.00	18.7	21.5	0.2	8.4
CV 588-220	22.0	25.00	(34.2)	24.40	22.00	20.7	24.5	0.2	9.5

Setting Tools – CV Series, Hand Tool, English

Setting Tools

Tool steel, Heat treated



Hand Tool

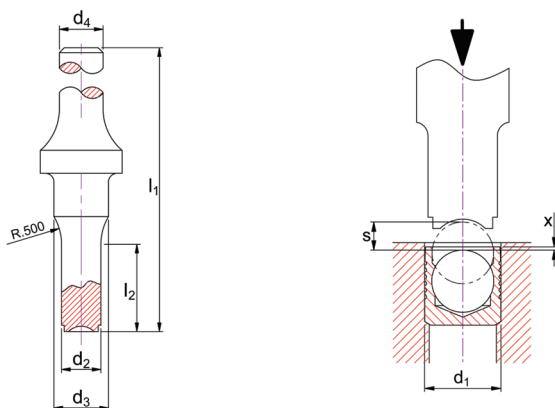
Dimensions listed in inches

Part Number	$\varnothing d_2$	$\varnothing d_3$ $\pm 0.005$	$l_1$	$l_2$	$x$ $\pm 0.004$	$s$ $\pm 0.008$	$\varnothing d_1$ Expander
HT-CVI-156	0.142	0.375	5.0	0.3	0.008	0.053	CV XXX-156
HT-CVI-187	0.173	0.375	5.0	0.4	0.010	0.066	CV XXX-187
HT-CVI-218	0.204	0.375	5.0	0.5	0.010	0.078	CV XXX-218
HT-CVI-250	0.236	0.375	5.0	0.6	0.010	0.094	CV XXX-250
HT-CVI-281	0.267	0.375	5.0	0.8	0.010	0.110	CV XXX-281
HT-CVI-312	0.298	0.375	5.0	1.3	0.010	0.129	CV XXX-312
HT-CVI-343	0.329	0.500	5.0	1.5	0.010	0.140	CV XXX-343
HT-CVI-375	0.361	0.500	5.0	1.5	0.010	0.153	CV XXX-375
HT-CVI-406	0.392	0.500	5.0	1.5	0.010	0.162	CV XXX-406
HT-CVI-437	0.423	0.500	5.0	1.5	0.010	0.166	CV XXX-437
HT-MBM-120	0.460	0.500	5.0	1.5	0.010	0.199	CV XXX-468
HT-CVI-562	0.548	0.625	5.0	1.8	0.010	0.233	CV XXX-562
HT-CVI-625	0.611	0.625	5.0	1.8	0.010	0.252	CV XXX-625
HT-CVI-687	0.673	0.750	5.0	1.8	0.010	0.289	CV XXX-687
HT-CVI-750	0.736	0.875	5.0	1.8	0.010	0.317	CV XXX-750
HT-CVI-875	0.861	1.000	5.0	1.8	0.010	0.354	CV XXX-875

## Setting Tools – CV Series, Air Hammer, English

### Setting Tools

Tool steel, Heat treated



### Air Hammer

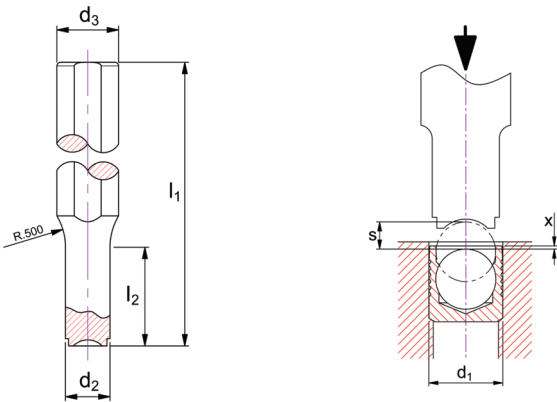
Dimensions listed in inches

Part Number	$\varnothing d_2$	$\varnothing d_3$ $\pm 0.005$	$\varnothing d_4$	$l_1$	$l_2$	$x$ $\pm .004$	$s$ $\pm .008$	$\varnothing d_1$ Expander
AH-CVI-156	0.142	0.500	0.401	4.0	0.3	0.08	0.053	CV XXX-156
AH-CVI-187	0.173	0.500	0.401	4.0	0.4	0.10	0.066	CV XXX-187
AH-CVI-218	0.204	0.500	0.401	4.0	0.5	0.10	0.078	CV XXX-218
AH-CVI-250	0.236	0.500	0.401	4.0	0.6	0.10	0.094	CV XXX-250
AH-CVI-281	0.267	0.500	0.401	4.0	0.8	0.10	0.110	CV XXX-281
AH-CVI-312	0.298	0.500	0.401	4.0	1.3	0.10	0.129	CV XXX-312
AH-CVI-343	0.329	0.500	0.401	4.0	1.5	0.10	0.140	CV XXX-343
AH-CVI-375	0.361	0.500	0.401	4.0	1.5	0.10	0.153	CV XXX-375
AH-CVI-406	0.392	0.500	0.401	4.0	1.5	0.10	0.162	CV XXX-406
AH-CVI-437	0.423	0.500	0.401	4.0	1.5	0.10	0.166	CV XXX-437
AH-MBM-120	0.460	0.500	0.401	4.0	1.5	0.10	0.199	CV XXX-468
AH-CVI-562	0.548	0.500	0.401	4.0	-	0.10	0.233	CV XXX-562
AH-CVI-625	0.611	0.500	0.401	4.0	-	0.10	0.252	CV XXX-625
AH-CVI-687	0.673	0.500	0.401	4.0	-	0.10	0.289	CV XXX-687
AH-CVI-750	0.736	0.500	0.401	4.0	-	0.10	0.317	CV XXX-750
AH-CVI-875	0.861	0.500	0.401	4.0	-	0.10	0.354	CV XXX-875

Setting Tools – CV Short Series, Hand Tool, English

Setting Tools

Tool steel, Heat treated



Hand Tool - Short Length Tool

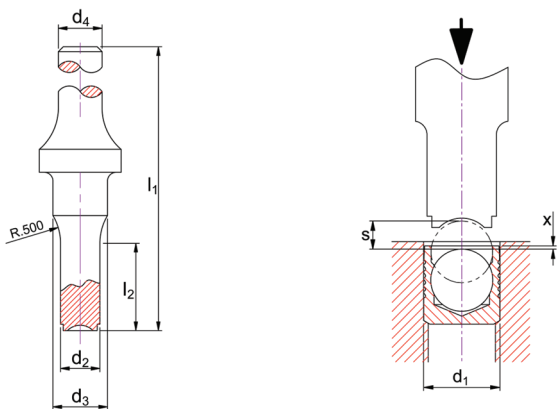
Dimensions listed in inches

Part Number	$\varnothing d_2$	$\varnothing d_3$ $\pm 0.005$	$l_1$	$l_2$	$x$ $\pm 0.004$	$s$ $\pm .008$	$\varnothing d_1$ Expander
HT-CVI-093	0.084	0.375	5.0	0.1	0.005	0.029	CV XXX-093S
HT-CVI-126	0.111	0.375	5.0	0.3	0.007	0.042	CV XXX-125S
HT-CVI-156-S	0.142	0.375	5.0	0.3	0.000	0.040	CV XXX-156S
HT-CVI-187	0.173	0.375	5.0	0.4	0.010	0.066	CV XXX-187S
HT-CVI-218	0.204	0.375	5.0	0.5	0.000	0.063	CV XXX-218S
HT-CVI-250	0.236	0.375	5.0	0.6	0.000	0.083	CV XXX-250S
HT-CVI-281-S	0.267	0.375	5.0	0.8	0.000	0.091	CV XXX-281S
HT-CVI-312	0.298	0.375	5.0	1.3	0.000	0.107	CV XXX-312S
HT-CVI-343	0.329	0.500	5.0	1.5	0.000	0.118	CV XXX-343S
HT-CVI-406-S	0.392	0.500	5.0	1.5	-0.010	0.143	CV XXX-406S

Setting Tools – CV Short Series, Air Hammer, English

Setting Tools

Tool steel, Heat treated



Air Hammer - Short Length Tool

Dimensions listed in inches

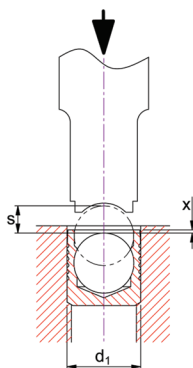
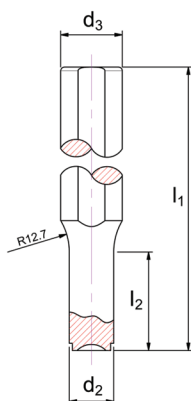
Part Number	$\varnothing d_2$	$\varnothing d_3$ $\pm 0.005$	$\varnothing d_4$	$l_1$	$l_2$	$x$ $\pm .004$	$s$ $\pm .008$	$\varnothing d_1$ Expander
AH-CVI-125	0.111	0.50	0.401	4.0	0.3	0.007	0.042	CV XXX-156S
AH-CVI-156-S	0.142	0.50	0.401	4.0	0.3	0.000	0.040	CV XXX-187S
AH-CVI-187	0.173	0.50	0.401	4.0	0.4	0.010	0.066	CV XXX-218S
AH-CVI-218	0.204	0.50	0.401	4.0	0.5	0.000	0.063	CV XXX-250S
AH-CVI-250	0.236	0.50	0.401	4.0	0.6	0.000	0.083	CV XXX-281S
AH-CVI-281-S	0.267	0.50	0.401	4.0	0.8	0.000	0.091	CV XXX-312S
AH-CVI-312	0.298	0.50	0.401	4.0	1.3	0.000	0.107	CV XXX-343S
AH-CVI-343	0.329	0.50	0.401	4.0	1.3	0.000	0.118	CV XXX-375S
AH-CVI-406-S	0.392	0.50	0.401	4.0	1.5	-0.010	0.143	CV XXX-406S



## Setting Tools – MB Series, Hand Tool, Metric

### Setting Tools

Tool steel, Heat treated



### Hand Tool - Metric

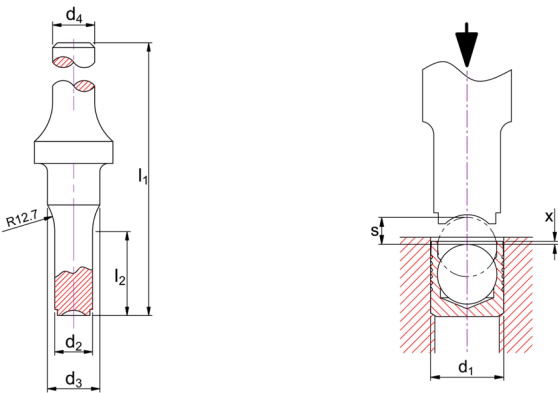
Dimensions listed in millimeters

Part Number	$\varnothing d_2$	$\varnothing d_3$ $\pm 0.12$	$l_1$	$l_2$	$x$ $\pm 0.10$	$s$ $\pm 0.2$	$\varnothing d_1$ Expander	
HT-MBM-030	2.8	9.53	127	7.6	0.2	1.0	MB XXX-030	CV XXX-030
HT-MBM-040	3.8	9.53	127	7.6	0.2	1.4	MB XXX-040	CV XXX-040
HT-MBM-050	4.8	9.53	127	12.7	0.2	1.9	MB XXX-050	CV XXX-050
HT-MBM-060	5.8	9.53	127	15.2	0.2	2.3	MB XXX-060	CV XXX-060
HT-MBM-070	6.8	9.53	127	20.3	0.2	2.8	MB XXX-070	CV XXX-070
HT-MBM-080	7.8	9.53	127	33.0	0.2	3.4	MB XXX-080	CV XXX-080
HT-MBM-090	8.8	12.70	127	38.1	0.2	3.7	MB XXX-090	CV XXX-090
HT-MBM-100	9.8	12.70	127	38.1	0.2	4.2	MB XXX-100	CV XXX-100
HT-MBM-120	11.7	12.70	127	38.1	0.2	5.1	MB XXX-120	CV XXX-120
HT-MBM-140	13.7	15.88	127	45.7	0.2	5.9	MB XXX-140	CV XXX-140
HT-MBM-160	15.7	15.88	127	45.7	0.2	6.4	MB XXX-160	CV XXX-160
HT-MBM-180	17.7	19.05	127	45.7	0.2	7.2	MB XXX-180	CV XXX-180
HT-MBM-200	19.7	22.23	127	45.7	0.2	8.4	MB XXX-200	CV XXX-200
HT-MBM-220	21.7	25.40	127	45.7	0.2	9.5	MB XXX-220	CV XXX-220

Setting Tools – MB Series, Air Hammer, Metric

Setting Tools

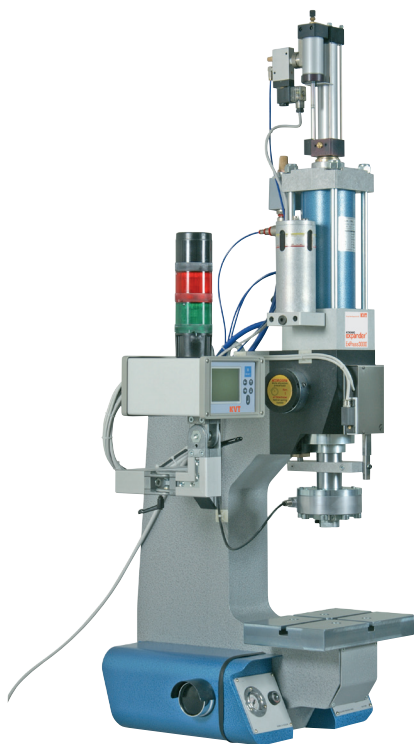
Tool steel, Heat treated



Air Hammer - Metric Version

Dimensions listed in millimeters

Part Number	$\varnothing d_2$	$\varnothing d_3$ $\pm 0.12$	$\varnothing d_2$	$l_1$	$l_2$	$x$ $\pm 0.10$	$s$ $\pm 0.2$	$\varnothing d_1$ Expander	
AH-MBM-030	2.8	12.7	10.2	101.6	7.6	0.2	1.0	MB XXX-030	CV XXX-030
AH-MBM-040	3.8	12.7	10.2	101.6	7.6	0.2	1.4	MB XXX-040	CV XXX-040
AH-MBM-050	4.8	12.7	10.2	101.6	12.7	0.2	1.9	MB XXX-050	CV XXX-050
AH-MBM-060	5.8	12.7	10.2	101.6	15.2	0.2	2.3	MB XXX-060	CV XXX-060
AH-MBM-070	6.8	12.7	10.2	101.6	20.3	0.2	2.8	MB XXX-070	CV XXX-070
AH-MBM-080	7.8	12.7	10.2	101.6	33.0	0.2	3.4	MB XXX-080	CV XXX-080
AH-MBM-090	8.8	12.7	10.2	101.6	33.0	0.2	3.7	MB XXX-090	CV XXX-090
AH-MBM-100	9.8	12.7	10.2	101.6	38.1	0.2	4.2	MB XXX-100	CV XXX-100
AH-MBM-120	11.7	12.7	10.2	101.6	38.1	0.2	5.1	MB XXX-120	CV XXX-120
AH-MBM-140	13.7	12.7	10.2	101.6	-	0.2	5.9	MB XXX-140	CV XXX-140
AH-MBM-160	15.7	12.7	10.2	101.6	-	0.2	6.4	MB XXX-160	CV XXX-160
AH-MBM-180	17.7	12.7	10.2	101.6	-	0.2	7.2	MB XXX-180	CV XXX-180
AH-MBM-200	19.7	12.7	10.2	101.6	-	0.2	8.4	MB XXX-200	CV XXX-200
AH-MBM-220	21.7	12.7	10.2	101.6	-	0.2	9.5	MB XXX-220	CV XXX-220



## Setting Tool CV / MB / LP

### Hydropneumatic table press

Force and distance controlled

## ExPress3000

Art.-No. 300 157 000

## ExPress5000

Art.-No. 300 158 292

Hydropneumatic setting tool for the installation of KOENIG expanders, series CV, MB and LP from 3-10mm (.093"-.375" inch) on the ExPress3000, and 12-22mm (.406"-.875" inch) on the ExPress5000. Quick tool change avoids long changeover times. The required working stroke is preprogrammed and can be retrieved by the expander type to be processed (max. 32 memory locations). In addition, the working stroke is referenced for each individual expander, which guarantees high process stability and quality. The press is force and distance controlled; an RS232 interface can be used to trace corresponding data on the customer's computer for later processing. The required software is included in the scope of delivery.

### Dimensions and weight

	ExPress3000	ExPress5000
Height	approx. 1360 mm	approx. 1470 mm
Width	approx. 340 mm (max. 530 mm)	approx. 400 mm (max. 580 mm)
Depth	approx. 495 mm	approx. 535 mm
Working area (height)	250 mm (working height between table top and cylinder, without setting tool)	
Working area (depth)	200 mm (center-line spacing between cylinder and C frame)	
Table (width x depth)	220 x 160 mm	300 x 190 mm
Weight	approx. 140 kg	approx. 190 kg

### Mechanical properties

Compressive force	30 kN (max. force 29.5 kN at 6 bar)	50 kN (max. force 52.5 kN at 6 bar)
Cylinder ram	60 mm	60 mm
Working stroke	10 mm (within the cylinder ram)	15 mm (within the cylinder ram)
Working speed	40 mm / sec (max. possible at 6 bar)	30 mm / sec (max. possible at 6 bar)

### Electrical properties

Operating voltage	230 V / 110 V, Automatic switchover to corresponding power supply
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### Electronic properties

Operation	VISUAL POINT terminal with QVGA graphic display
Force / distance control	Sensors adjusted with SIT reference sensor
Software	WINSCOPE Software for connecting to a PC

## UNIQUE SEALING SYSTEM FOR ACCESSORY HOLES

The KOENIG-expander® is a system to seal holes with absolute integrity in various demanding applications, including Mobile Fluid Power, Automotive Engine and Chassis, Medical, Aerospace and many others. Compared to earlier methods, such as threaded plugs with or without sealing software, press-in pins, welding, etc. the KOENIG-expander® distinguishes itself by its fast and reliable installation while incorporating reasonable installation tolerances. Thanks to the continuous expansion of our product offering along with the capability to custom design sealing components to customer specifications, KVT offers a suitable sealing system for every application.

The KOENIG-expander® plug pressure ratings incorporate a minimum Factor of Safety to accommodate for pressure spikes and cyclic pressure loading. As a result of this reliable and leak tight sealing system, the expanders have found broad application on components such as: hydraulic and pneumatic control valves and manifolds, hydraulic pumps and motors, power transmission components, brake components, etc.



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