

**GROVE
Products**
by KKSP Precision Machining



About Grove Products

Grove Products are a line of premier, made in the U.S.A., metal hose fittings and adapters produced to exacting specifications by KKSP Precision Machining on our fleet of automatic screw machines. The Grove Product line consists of a large selection of standard and custom catalog fittings used across a wide spectrum of industrial applications. Most products are available for same day shipment and we welcome the challenge to customize designs to better meet your specific requirements. Whether you need standard fittings or custom screw machine products, KKSP Precision Machining looks forward to servicing to you with its world class machining capabilities and customer service organization.

History

Grove Products was founded in 1974 by three industry experts committed to offering premium, made in the United States, hose fittings and adapters. Since inception, Grove has built a solid reputation for quality, reliability, and customer service in the hose products marketplace. In 2019 Grove joined forces with KKSP Precision Machining, the capabilities leader in the North American screw machine products market. KKSP is proud to carry forward the Grove legacy for superior products and service while leveraging our industry leading capabilities for the benefit of our customers.

Quality

Utilizing world class precision machining processes across our over 450 primary production machines in four locations, our quality systems are designed to meet your demanding specifications every time! From certification and control of our material suppliers through the consistent control of our production processes and same-day shipment, our Grove Products utilize leading quality systems and standards and are produced in our ISO 9001/TS-16949 certified facilities. We consider ourselves in the business of exceeding each of our customers' quality expectations.

Delivery

Accurate, on-time delivery is an hourly priority, and same day shipping for the majority of our products is standard practice. Our customers value delivery, and our manufacturing facility allows us to produce and ship to the market's requirements.

Price

In our increasingly global marketplace, we recognize that cost is a major factor for our customers. As one of the largest companies of our kind in North America, we can offer our customers the benefits of our unique level of scale and efficiency, so that in addition to our leading quality and service, you will find that our pricing is also highly competitive. We want to help our customers to be successful so that we can grow our businesses together!

Service

We value the trust that every customer places in us with each order and are committed to earning that trust every day! Reliable performance, quality products, on-time delivery, competitive pricing, all combine with our customer-centric focus on service to understand and serve your unique needs.

Grove Products is a member of the KKSP Precision Machining family. We boast the largest array of machines coupled with a depth of experience that is unmatched by any other company in our marketplace. Visit KKSP.com to learn more about our custom machined parts capabilities.

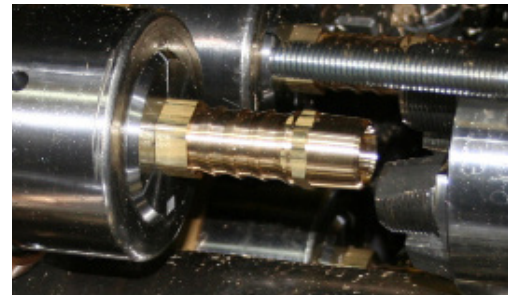
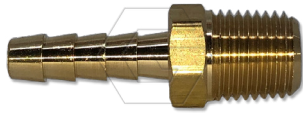


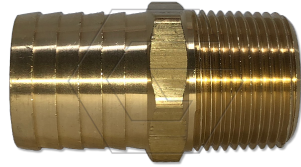
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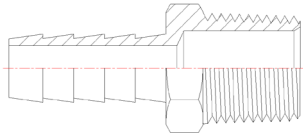
Hose Barb to Male Pipe



MPB-04-04



MPB-20-16



MPB-04-04

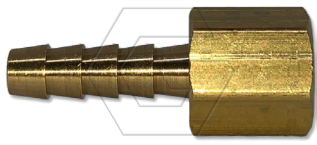
Hose Barb to Male Pipe is suitable for a broad range of applications, including automotive, industrial, and commercial. This fitting is made from high-quality 360 Brass and is manufactured in the United States to ISO 9001 quality specifications. Please see the below table for part specifications. All fittings have 4 barbs except as noted.

* These fittings have 3 barbs

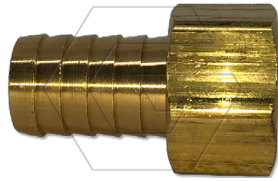
** These fittings have 5 barbs

Part Number	Hose I.D.	Thread NPTF	Barb Length	Overall Length	Thru Hole	Hex Size	Std Pkg	WT/100 pcs	Online Ordering
*MPB-03-02	3/16	1/8-27	0.78	1.32	.125	1/2	1000	2.4	
*MPB-03-04	3/16	1/4-18	0.78	1.57	.125	9/16	1000	3.7	
MPB-04-02	1/4	1/8-27	0.97	1.53	.177	1/2	1000	2.9	
MPB-04-04	1/4	1/4-18	0.97	1.76	.177	9/16	1000	4.4	Available
MPB-04-06	1/4	3/8-18	0.97	1.76	.177	11/16	800	6.2	Available
MPB-04-08	1/4	1/2-14	0.97	1.97	.177	7/8	250	10.4	
MPB-05-02	5/16	1/8-27	0.97	1.53	.216	1/2	1000	3.3	
MPB-05-04	5/16	1/4-18	0.97	1.76	.228	9/16	1000	4.4	Available
MPB-05-06	5/16	3/8-18	0.97	1.76	.228	11/16	700	6.4	Available
MPB-05-08	5/16	1/2-14	0.97	1.97	.228	7/8	400	10.6	
MPB-06-02	3/8	1/8-27	0.97	1.53	.265	1/2	1000	4.2	
MPB-06-04	3/8	1/4-18	0.97	1.76	.281	9/16	1000	4.9	Available
MPB-06-06	3/8	3/8-18	0.97	1.76	.281	11/16	700	6.6	Available
MPB-06-08	3/8	1/2-14	0.97	1.97	.281	7/8	400	11.7	Available
MPB-06-12	3/8	3/4-14	0.97	1.97	.281	1 1/16	250	15.0	
MPB-07-04	7/16	1/4-18	0.97	1.76	.343	9/16	900	4.9	
MPB-08-04	1/2	1/4-18	0.97	1.76	.343	9/16	800	6.4	
MPB-08-06	1/2	3/8-18	0.97	1.76	.406	11/16	600	6.8	Available
MPB-08-08	1/2	1/2-14	0.97	1.97	.406	7/8	400	11.9	Available
MPB-08-12	1/2	3/4-14	0.97	1.97	.406	1 1/16	250	15.7	Available
MPB-10-06	5/8	3/8-18	0.97	1.76	.469	11/16	600	8.4	
MPB-10-08	5/8	1/2-14	0.97	1.97	.500	7/8	350	12.8	Available
MPB-10-12	5/8	3/4-14	0.97	1.97	.500	1 1/16	250	17.0	Available
MPB-12-08	3/4	1/2-14	0.97	1.97	.562	7/8	300	14.8	Available
MPB-12-12	3/4	3/4-14	0.97	1.97	.656	1 1/16	250	16.1	Available
**MPB-12-16	3/4	1-11 1/2	1.19	2.55	.625	1 3/8	100	33.7	
**MPB-16-12	1	3/4-14	1.19	2.19	.750	1 1/16	200	25.1	
**MPB-16-16	1	1-11 1/2	1.19	2.55	.843	1 3/8	100	36.4	Available
**MPB-20-16	1 1/4	1-11 1/2	1.19	2.55	.937	1 3/8	50	46.7	Available

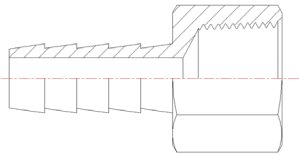
Hose Barb to Female Pipe



FPB-04-04



FPB-12-12



FPB-04-04

Hose Barb to Female Pipe is suitable for a broad range of applications, including automotive, industrial, and commercial. This fitting is made from high-quality 360 Brass and is manufactured in the United States to ISO 9001 quality specifications. Please see the below table for part specifications. All fittings have 4 Barbs except as noted.

* These fittings have 3 barbs

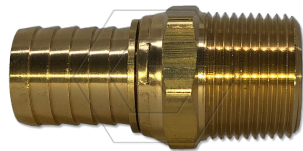
** These fittings have 5 barbs

Part Number	Hose I.D.	Thread NPTF	Barb Length	Overall Length	Thru Hole	Hex Size	Std. Pkg.	WT/100 pcs.	Online Ordering
*FPB-03-02	3/16	1/8-27	.76	1.26	0.125	1/2	1000	2.2	
*FPB-03-04	3/16	1/4-18	.76	1.43	0.125	5/8	1000	4.3	
FPB-04-02	1/4	1/8-27	0.97	1.45	0.177	1/2	1000	2.6	
FPB-04-04	1/4	1/4-18	0.97	1.61	0.177	5/8	1000	4.6	Available
FPB-05-04	5/16	1/4-18	0.97	1.61	0.228	5/8	1000	4.9	
FPB-06-02	3/8	1/8-27	0.97	1.45	0.281	1/2	1000	3.5	
FPB-06-04	3/8	1/4-18	0.97	1.61	0.281	5/8	800	5.3	
FPB-06-06	3/8	3/8-18	0.97	1.63	0.281	3/4	700	6.4	Available
FPB-06-08	3/8	1/2-14	0.97	1.77	0.281	15/16	350	10.4	
FPB-08-04	1/2	1/4-18	0.97	1.61	0.406	5/8	700	5.5	
FPB-08-06	1/2	3/8-18	0.97	1.63	0.406	3/4	600	6.8	
FPB-08-08	1/2	1/2-14	0.97	1.77	0.406	15/16	350	11.2	
**FPB-12-12	3/4	3/4-14	1.19	1.99	0.625	1-3/16	200	19.4	

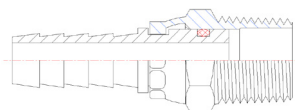
Hose Barb to Male Pipe Swivel



SMS-04-04



SMS-16-16

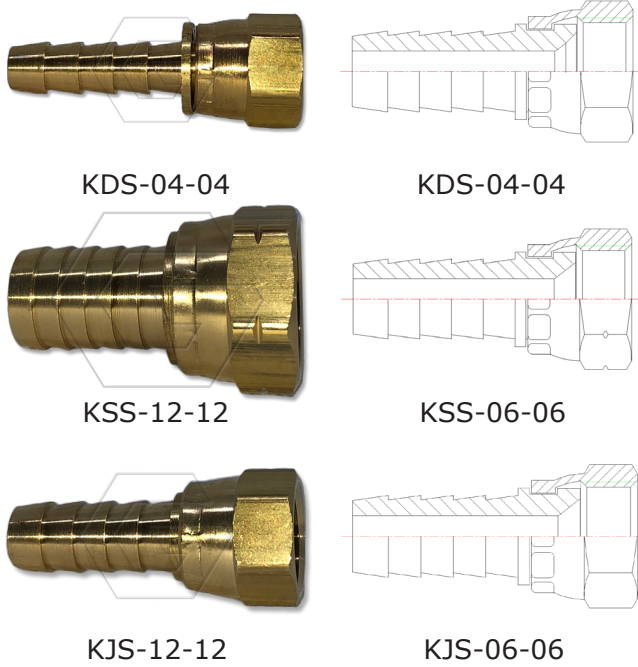


SMS-04-04

Hose Barb to Male Pipe Swivel is suitable for a broad range of applications, including automotive, industrial, and commercial. This fitting is made from high-quality 360 Brass and is manufactured in the United States to ISO 9001 quality specifications. Please see the below table for part specifications. Swivel for assembly convenience only.

Part Number	Hose I.D.	Thread NPTF	Barb Length	Overall Length	Thru Hole	Hex Size	Std. Pkg.	WT/100 pcs.	Online Ordering
SMS-03-02	3/16	1/8-27	.78	1.95	.125	9/16	500	5.8	
SMS-04-02	1/4	1/8-27	.97	2.17	.177	9/16	500	6.1	
SMS-03-04	3/16	1/4-18	.78	1.90	.125	9/16	500	5.7	
SMS-04-04	1/4	1/4-18	.97	2.12	.177	9/16	500	6.0	Available
SMS-04-06	1/4	3/8-18	.97	2.12	.177	11/16	500	7.8	
SMS-06-02	3/8	1/8-27	.97	2.12	.177	9/16	400	6.9	
SMS-06-04	3/8	1/4-18	.97	2.12	.177	9/16	400	6.6	Available
SMS-06-06	3/8	3/8-18	.97	2.12	.281	11/16	300	8.4	Available
SMS-08-06	1/2	3/8-18	.97	2.12	.281	11/16	250	9.7	
SMS-08-08	1/2	1/2-14	.97	2.33	.406	7/8	200	14.1	Available
SMS-10-12	5/8	3/4-14	.97	2.33	.500	1 1/16	150	20.5	
SMS-12-12	3/4	3/4-14	.97	2.33	.609	1 1/16	150	20.7	
SMS-16-16	1"	1"-11-1/2	1.19	2.86	.843	1 3/8	50	38.8	

Hose Barb to Female Swivel Dual Seat Crimped



Hose Barb to Female Swivel Dual Seat Crimped is suitable for a broad range of applications, including automotive, industrial, and commercial. This fitting is made from high-quality 360 Brass and is manufactured in the United States to ISO 9001 quality specifications. Please see the below table for part specifications.

* This fitting has 3 barbs

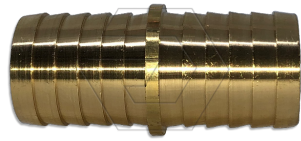
**These fittings have 5 barbs

Part Number	Hose I.D.	Tube Size	Thread Size	Barb Length	Thru Hole	Hex Size	Std. Pkg.	WT/100 pcs.	Online Ordering
*KDS-03-04	3/16	#4 - JIC & SAE Dual Seat	7/16-20	.78	.125	9/16	1000	3.8	
KDS-04-04	1/4	#4 - JIC & SAE Dual Seat	7/16-20	.97	.177	9/16	1000	4.0	Available
KDS-08-08	1/2	#8 - JIC & SAE Dual Seat	3/4-16	.97	.406	7/8	400	8.8	
KDS-08-10	1/2	#10 - JIC & SAE Dual Seat	7/8-14	.97	.406	1	250	11.8	
KDS-10-10	5/8	#10 - JIC & SAE Dual Seat	7/8-14	.97	.500	1	200	11.8	
Hose Barb to Female SAE Swivel Crimped									
KSS-06-06	3/8	#6 - SAE	5/8-18	.97	.281	3/4	500	6.7	
**KSS-12-12	3/4	#12 - SAE	1 1/16-14	1.19	.656	1 1/4	200	19.5	
Hose Barb to Female JIC Swivel Crimped									
KJS-06-06	3/8	#6 - JIC	9/16-18	.97	.281	11/16	600	5.5	Available
**KJS-12-12	3/4	#12 - JIC	1 1/16-12	1.19	.656	1 1/4	200	19.5	
**KJS-16-16	1"	#16 - JIC	1 5/16-12	1.19	.843	1 1/2	100	32.6	

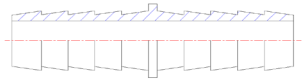
Hose Barb Mender



MSB-04-04



MSB-12-12



MSB-04-04

Hose Barb Mender is suitable for a broad range of applications, including automotive, industrial, and commercial. This fitting is made from high-quality 360 Brass and is manufactured in the United States to ISO 9001 quality specifications. Please see the below table for part specifications. All fittings are 4-barb except as noted.

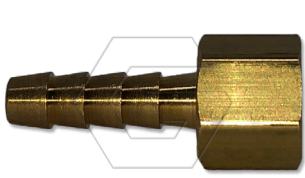
* This fitting has 3 barbs

** Non Standard (2,000 Min Run)

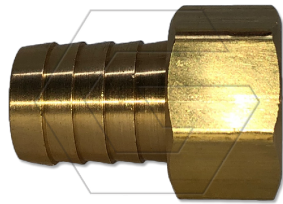
*** This fitting has 5 barbs

Part Number	Hose I.D.	Barb Length	Thru Hole	Overall Length	Std. Pkg.	WT/100 pcs.	Online Ordering
*MSB-03-03	3/16	.76	.125	1.58	1000	1.1	
MSB-04-04	1/4	.97	.177	2.00	1000	2.4	Available
MSB-04-05	1/4 x 5/16	.97	.177	2.00	500	2.7	
MSB-04-06	1/4 x 3/8	.97	.177	2.00	500	3.1	
MSB-05-05	5/16	.97	.228	2.00	700	2.9	
MSB-05-06	5/16 x 3/8	.97	.228	2.00	500	3.3	
MSB-06-06	3/8	.97	.281	2.00	600	3.5	
MSB-06-08	3/8 x 1/2	.97	.281	2.00	500	4.9	
MSB-08-08	1/2	.97	.406	2.00	500	5.1	Available
MSB-08-10	1/2 x 5/8	.97	.406	2.00	500	6.6	
MSB-10-10	5/8	.97	.500	2.00	400	7.5	Available
MSB-10-12	5/8 x 3/4	.97	.500	2.00	350	8.8	
MSB-12-12	3/4	.97	.625	2.00	350	9.9	Available
**MSB-16-12	1 x 3/4	.97	.625	2.00	100	17.5	
***MSB-16-16	1	1.19	.843	2.50	100	19.2	Available

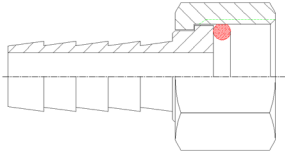
Hose Barb to Female Swivel "O" Ring Seal



FOS-04-04



FOS-12-12

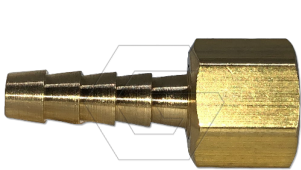


FOS-04-04

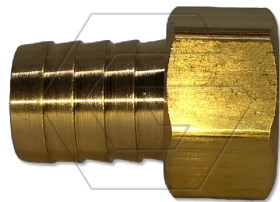
Hose Barb to Female Swivel "O" Ring is suitable for a broad range of applications, including automotive, industrial, and commercial. This fitting is made from high-quality 360 Brass and is manufactured in the United States to ISO 9001 quality specifications. Please see the below table for part specifications. Designed to replace the red gasket seal fitting. 90 durometer "O" ring used.

Part Number	Hose I.D.	Thread NPSM	Barb Length	Nut Length	Thru Hole	Hex Length	Std. Pkg.	WT/100 pcs.	Online Ordering
FOS-04-04	1/4	1/4-18	.97	.53	.177	5/8	500	4.6	
FOS-04-06	1/4	3/8-18	.97	.59	.177	3/4	300	5.8	
FOS-06-04	3/8	1/4-18	.97	.53	.281	5/8	500	5.3	
FOS-06-06	3/8	3/8-18	.97	.59	.281	3/4	300	6.2	
FOS-08-08	1/2	1/2-14	.97	.69	.406	15/16	250	10.2	
FOS-12-12	3/4	3/4-14	.97	.69	.656	1 1/8	150	13	

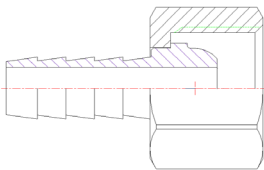
Hose Barb to Female Swivel, Ball Seat



FBS-04-04



FBS-12-12

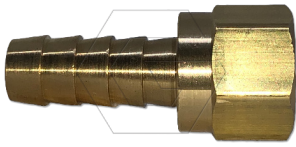


FBS-04-04

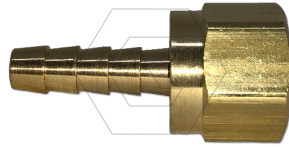
Hose Barb to Female Swivel, Ball Seat is suitable for a broad range of applications, including automotive, industrial, and commercial. This fitting is made from high-quality 360 Brass and is manufactured in the United States to ISO 9001 quality specifications. Please see the below table for part specifications.

Part Number	Hose I.D.	Thread NPSM	Barb Length	Nut Length	Thru Hole	Hex Length	Std. Pkg.	WT/100 pcs.	Online Ordering
FBS-04-04	1/4	1/4-18	.97	.53	.177	5/8	1000	4.9	
FBS-05-04	5/16	1/4-18	.97	.53	.228	5/8	1000	4.9	
FBS-06-04	3/8	1/4-18	.97	.53	.250	5/8	1000	5.3	
FBS-06-06	3/8	3/8-18	.97	.59	.281	3/4	600	6.8	
FBS-08-06	1/2	3/8-18	.97	.59	.406	3/4	600	6.4	
FBS-08-08	1/2	1/2-14	.97	.69	.406	15/16	300	11.5	
FBS-12-12	3/4	3/4-14	.97	.69	.656	1 1/8	150	15.2	

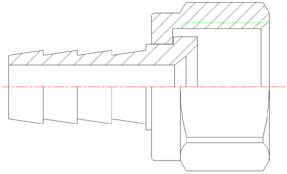
Hose Barb to Female Swivel



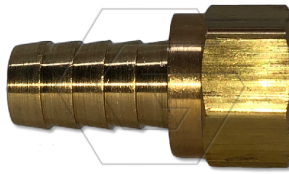
FJS-04-06



FSS-04-06



FDS-03-04



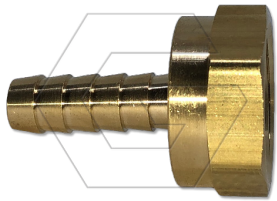
FDS-08-08

Hose Barb to Female Swivel is suitable for a broad range of applications, including automotive, industrial, and commercial. This fitting is made from high-quality 360 Brass and is manufactured in the United States to ISO 9001 quality specifications. Please see the below table for part specifications.

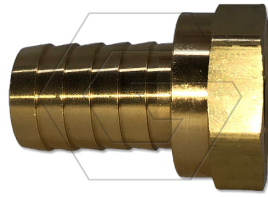
* This fitting has 3 barbs

Hose Barb to Female Swivel J.I.C. 37° Seat									
Part Number	Hose I.D.	Tube Size	Thread Size	Barb Length	Thru Hole	Hex Size	Std. Pkg.	WT/100 pcs.	Online Ordering
FJS-04-06	1/4	6	9/16-18	.97	.177	11/16	600	5.3	
FJS-05-06	5/16	6	9/16-18	.97	.228	11/16	600	5.5	
FJS-06-06	3/8	6	9/16-18	.97	.281	11/16	600	5.8	
Hose Barb to Female Swivel S.A.E. 45° Seat									
Part Number	Hose I.D.	Tube Size	Thread Size	Barb Length	Thru Hole	Hex Size	Std. Pkg.	WT/100 pcs.	Online Ordering
*FSS-03-06	3/16	6	5/8-18	.78	.125	3/4	1000	6.1	
FSS-04-06	1/4	6	5/8-18	.97	.177	3/4	500	6.4	
FSS-05-06	5/16	6	5/8-18	.97	.228	3/4	500	6.6	
FSS-06-06	3/8	6	5/8-18	.97	.281	3/4	500	6.9	
Hose Barb to Female Swivel Dual Angle Dual Angle Seat 37°/45°									
Part Number	Hose I.D.	Tube Size	Thread Size	Barb Length	Thru Hole	Hex Size	Std. Pkg.	WT/100 pcs.	Online Ordering
FDS-03-04	3/16	4	7/16-20	.78	.125	9/16	1000	3.5	
FDS-04-04	1/4	4	7/16-20	.97	.177	9/16	1000	4.0	Available
FDS-04-05	1/4	5	1/2-20	.97	.177	5/8	800	4.5	
FDS-05-05	5/16	5	1/2-20	.97	.228	5/8	800	4.7	
FDS-06-08	3/8	8	3/4-16	.97	.281	7/8	500	8.6	
FDS-08-08	1/2	8	3/4-16	.97	.406	7/8	400	9.5	
FDS-08-10	see KDS-08-10								

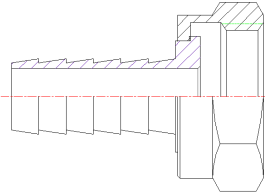
Hose Barb to Female NPS Swivel



NPF-06



NPF-12

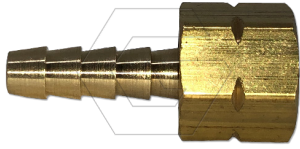


NPF-06

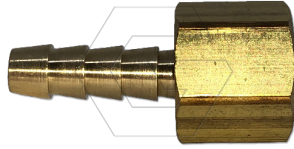
Hose Barb to Female NPS Swivel is suitable for a broad range of applications, including automotive, industrial, and commercial. This fitting is made from high-quality 360 Brass and is manufactured in the United States to ISO 9001 quality specifications. Please see the below table for part specifications.

Part Number	Hose I.D.	Thread NPSM	Barb Length	Overall Length	Thru Hole	Hex Size	Std. Pkg.	WT/100 pcs.	Online Ordering
NPF-06	3/8	3/4-14	1.19	1.82	.281	1 3/16	200	12.4	
NPF-08	1/2	3/4-14	1.19	1.82	.406	1 3/16	200	12.7	
NPF-10	5/8	3/4-14	1.19	1.82	.531	1 3/16	200	13.1	
NPF-12	3/4	3/4-14	1.19	1.82	.625	1 3/16	200	14.0	

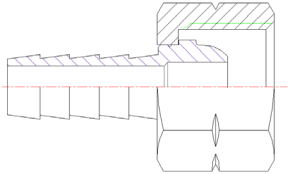
Weld Hose



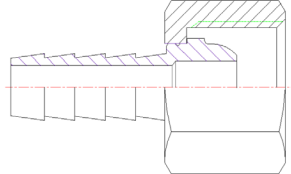
WLS-04-09



WRS-04-09



WLS-04-09

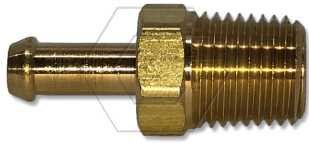


WRS-04-09

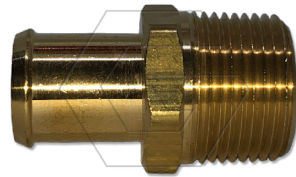
Weld Hose is suitable for a broad range of applications, including automotive, industrial, and commercial. This fitting is made from high-quality 360 Brass and is manufactured in the United States to ISO 9001 quality specifications. Please see the below table for part specifications.

Weld Hose Left Hand Thread for Acetylene								
*LH Thread has notch on Hex								
Part Number	Hose I.D.	Thread LH	Barb Length	Thru Hole	Hex Size	Std. Pkg.	WT/100 pcs.	Online Ordering
WLS-03-09	3/16	9/16-18	.97	.125	11/16	500	6.3	
WLS-04-09	1/4	9/16-18	.97	.177	11/16	500	6.4	
WLS-05-09	5/16	9/16-18	.97	.228	11/16	500	6.6	
WLS-06-09	3/8	9/16-18	.97	.250	11/16	500	6.8	
Weld Hose Right Hand Thread for Oxygen								
Part Number	Hose I.D.	Thread RH	Barb Length	Thru Hole	Hex Size	Std. Pkg.	WT/100 pcs.	Online Ordering
WRS-03-09	3/16	9/16-18	.97	.125	11/16	500	6.3	
WRS-04-09	1/4	9/16-18	.97	.177	11/16	500	6.4	
WRS-05-09	5/16	9/16-18	.97	.228	11/16	500	6.6	
WRS-06-09	3/8	9/16-18	.97	.250	11/16	500	6.8	

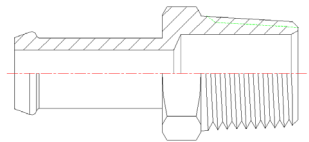
Beaded Hose Barb to Male Pipe



BBM-04-04



BBM-12-12

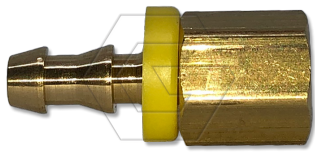


BBM-04-04

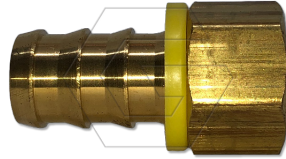
Beaded Hose Barb to Male Pipe is suitable for a broad range of applications, including automotive, industrial, and commercial. This fitting is made from high-quality 360 Brass and is manufactured in the United States to ISO 9001 quality specifications. Please see the below table for part specifications.

Part Number	Hose I.D.	Thread NPTF	Barb Length	Overall Length	Thru Hole	Hex Size	Std Pkg	WT/100 pcs.	Online Ordering
BBM-03-02	3/16	1/8-27	.625	1.18	.125	1/2	500	2.0	
BBM-04-02	1/4	1/8-27	.625	1.18	.177	1/2	500	2.4	
BBM-04-04	1/4	1/4-18	.625	1.41	.177	9/16	500	4.2	
BBM-05-02	5/16	1/8-27	.625	1.18	.216	1/2	500	2.6	
BBM-05-04	5/16	1/4-18	.625	1.41	.228	9/16	500	4.4	
BBM-06-02	3/8	1/8-27	.875	1.43	.228	1/2	500	4.0	
BBM-06-04	3/8	1/4-18	.875	1.67	.281	9/16	500	4.6	
BBM-06-06	3/8	3/8-18	.875	1.67	.281	11/16	400	6.4	
BBM-08-06	1/2	3/8-18	.875	1.67	.406	11/16	350	6.4	
BBM-08-08	1/2	1/2-14	.875	1.88	.406	7/8	250	11.4	
BBM-10-08	5/8	1/2-14	.875	1.88	.500	7/8	200	12.1	
BBM-12-08	3/4	1/2-14	.875	1.88	.562	7/8	200	13.7	
BBM-12-12	3/4	3/4-14	.875	1.88	.656	1 1/16	150	15.4	

"Push-On" Hose Barb to Female Pipe



HLF-04-04



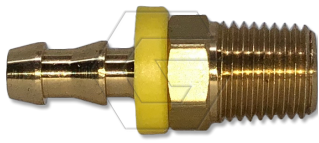
HLF-12-12

"Push-On" Hose Barb to Female Pipe is suitable for a broad range of applications, including automotive, industrial, and commercial. This fitting is made from high-quality 360 Brass and is manufactured in the United States to ISO 9001 quality specifications. Please see the below table for part specifications.

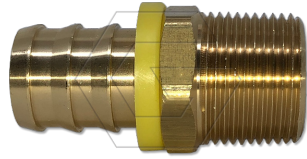
* This fitting has 3 barbs

Part Number	Hose ID	Thread NPTF	Barb Length	Overall Length	Thru Hole	Hex Size	Std Pkg	WT/100 pcs.	Online Ordering
HLF-04-02	1/4	1/8-27	.87	1.35	.177	1/2	1000	3.2	
HLF-04-04	1/4	1/4-18	.87	1.51	.177	5/8	1000	5.0	Available
HLF-05-04	5/16	1/4-18	.87	1.51	.228	5/8	1000	5.4	
HLF-06-02	3/8	1/8-27	.97	1.46	.281	9/16	500	4.7	
HLF-06-04	3/8	1/4-18	.97	1.61	.281	5/8	700	5.9	
HLF-06-06	3/8	3/8-18	.97	1.63	.281	3/4	500	7.0	Available
HLF-08-06	1/2	3/8-18	.97	1.63	.406	3/4	400	7.7	
HLF-06-08	3/8	1/2-14	.97	1.77	.281	15/16	300	11.6	
HLF-08-08	1/2	1/2-14	.97	1.77	.406	15/16	300	11.9	Available
*HLF-12-12	3/4	3/4-14	1.45	2.25	.532	1-3/16	150	20.4	Available

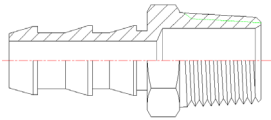
"Push-On" Hose Barb to Male Pipe



HLM-04-04



HLM-16-16



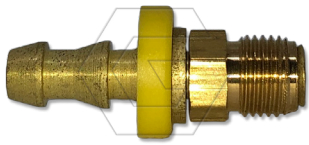
HLM-04-04

"Push-On" Hose Barb to Male Pipe is suitable for a broad range of applications, including automotive, industrial, and commercial. This fitting is made from high-quality 360 Brass and is manufactured in the United States to ISO 9001 quality specifications. Please see the below table for part specifications.

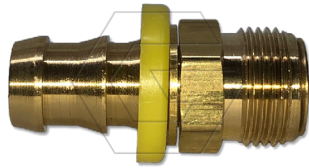
* These fittings have 3 barbs

Part Number	Hose ID	Thread NPTF	Barb Length	Overall Length	Thru Hole	Hex Size	Std Pkg	WT/100 pcs.	Online Ordering
HLM-04-02	1/4	1/8-27	.87	1.43	.177	1/2	1000	3.2	
HLM-04-04	1/4	1/4-18	.87	1.66	.177	9/16	1000	4.7	Available
HLM-04-06	1/4	3/8-18	.87	1.66	.177	11/16	600	6.3	
HLM-05-02	5/16	1/8-27	.87	1.43	.216	1/2	500	3.7	
HLM-05-04	5/16	1/4-18	.87	1.66	.228	9/16	900	5.0	
HLM-06-02	3/8	1/8-27	.97	1.53	.265	1/2	500	5.0	
HLM-06-04	3/8	1/4-18	.97	1.76	.281	9/16	700	5.4	Available
HLM-06-06	3/8	3/8-18	.97	1.76	.281	11/16	500	7.2	
HLM-06-08	3/8	1/2-14	.97	1.97	.281	7/8	400	12.2	
HLM-06-12	3/8	3/4-14	.97	1.97	.281	1-1/16	200	15.9	
HLM-08-04	1/2	1/4-18	.97	1.76	.343	11/16	500	7.1	
HLM-08-06	1/2	3/8-18	.97	1.76	.406	11/16	500	7.8	Available
HLM-08-08	1/2	1/2-14	.97	1.97	.406	7/8	350	12.9	
HLM-08-12	1/2	3/4-14	.97	1.97	.406	1-1/16	200	16.7	
*HLM-10-08	5/8	1/2-14	1.45	2.45	.532	7/8	200	15.0	
*HLM-10-12	5/8	3/4-14	1.45	2.45	.532	1-1/16	150	18.7	
*HLM-12-08	3/4	1/2-14	1.45	2.45	.562	7/8	200	19.6	
*HLM-12-12	3/4	3/4-14	1.45	2.45	.656	1-1/16	150	19.8	Available
*HLM-16-16	1"	1-11 1/2	1.45	2.80	.812	1-3/8	100	41.6	

"Push-On" Hose Barb to SAE Inverted Flare Male Swivel

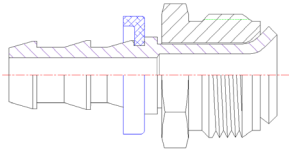


IMS-04-04



IMS-08-08

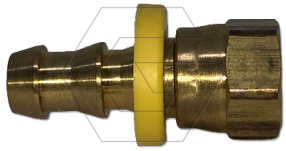
"Push-On" Hose Barb to SAE Inverted Flare Male Swivel is suitable for a broad range of applications, including automotive, industrial, and commercial. This fitting is made from high-quality 360 Brass and is manufactured in the United States to ISO 9001 quality specifications. Please see the below table for part specifications.



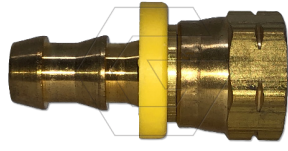
IMS-04-04

Part Number	Hose I.D.	Tube O.D.	Thread UN	Barb Length	Overall Length	Thru Hole	Hex Size	Std Pkg	WT/100 pcs.	Online Ordering
IMS-04-04	1/4	1/4	7/16-24	.87	1.56	.177	7/16	1000	3.3	Available
IMS-04-05	1/4	5/16	1/2-20	.87	1.62	.177	1/2	1000	4.3	
IMS-05-04	5/16	1/4	7/16-24	.87	1.56	.187	7/16	1000	4.1	
IMS-05-05	5/16	5/16	1/2-20	.87	1.62	.228	1/2	1000	4.5	
IMS-05-06	5/16	3/8	5/8-18	.87	1.63	.228	5/8	650	6.4	
IMS-06-05	3/8	5/16	1/2-20	.97	1.72	.234	1/2	600	5.6	
IMS-06-06	3/8	3/8	5/8-18	.97	1.76	.281	5/8	650	6.9	Available
IMS-08-08	1/2	1/2	3/4-18	.97	1.84	.406	3/4	400	10.1	Available

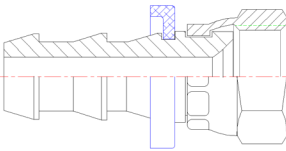
"Push-On" Hose Barb to Female Swivel



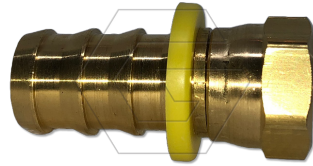
HJF-06-06



HSF-06-06



HDF-04-04



HDF-12-10

"Push-On" Hose Barb to Female Swivel is suitable for a broad range of applications, including automotive, industrial, and commercial. This fitting is made from high-quality 360 Brass and is manufactured in the United States to ISO 9001 quality specifications. Please see the below table for part specifications.

"Push-On" Hose Barb to Female Swivel J.I.C. 37° Seat

Part Number	Hose I.D.	Tube Size	Thread Size	Barb Length	Thru Hole	Hex Size	Std Pkg	WT/100 pcs.	Online Ordering
HJF-04-06	1/4	6	9/16-18	.87	.177	11/16	600	5.3	
HJF-05-06	5/16	6	9/16-18	.87	.228	11/16	600	5.4	
HJF-06-06	3/8	6	9/16-18	.97	.281	11/16	600	6.2	Available
HJF-08-06	1/2	6	9/16-18	.97	.281	11/16	600	7.6	
HJF-12-12	3/4	12	1 1/16-12	1.45	.656	1-1/4	150	22.5	Available
HJF-16-16	1	16	1 5/16-12	1.45	.812	1-1/2	100	39.2	

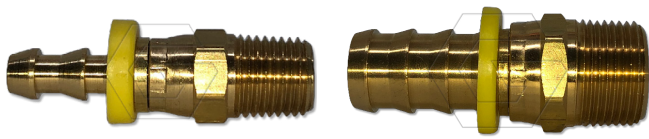
"Push-On" Hose Barb to Female Swivel S.A.E. 45° Seat

Part Number	Hose I.D.	Tube Size	Thread Size	Barb Length	Thru Hole	Hex Size	Std Pkg	WT/100 pcs.	Online Ordering
HSF-04-06	1/4	6	5/8-18	.87	.177	3/4	500	6.3	
HSF-05-06	5/16	6	5/8-18	.87	.228	3/4	500	6.7	
HSF-06-06	3/8	6	5/8-18	.97	.281	3/4	500	7.3	Available
HSF-08-06	1/2	6	5/8-18	.97	.281	3/4	500	10.0	
HSF-12-12	3/4	12	1 1/16-14	1.45	.656	1-1/4	150	22.3	

"Push-On" Hose Barb to Female Swivel Dual Angle 37°/45° Dual Angle Seat

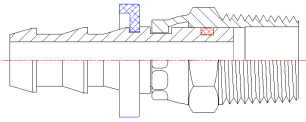
Part Number	Hose I.D.	Tube Size	Thread Size	Barb Length	Thru Hole	Hex Size	Std Pkg	WT/100 pcs.	Online Ordering
HDF-04-04	1/4	4	7/16-20	.87	.177	9/16	1000	4.0	Available
HDF-04-05	1/4	5	1/2-20	.87	.177	5/8	800	4.7	
HDF-05-05	5/16	5	1/2-20	.87	.228	5/8	800	5.2	
HDF-06-05	3/8	5	1/2-20	.97	.234	5/8	500	6.2	
HDF-06-08	3/8	8	3/4-16	.97	.281	7/8	400	9.1	
HDF-08-08	1/2	8	3/4-16	.97	.406	7/8	400	9.8	Available
HDF-08-10	1/2	10	7/8-14	.97	.406	1	200	11.6	
HDF-10-08	5/8	8	3/4-16	1.45	.531	7/8	200	17.2	
HDF-10-10	5/8	10	7/8-14	1.45	.531	1	200	14.3	Available
HDF-12-10	3/4	10	7/8-14	1.45	.560	1	150	19.6	

"Push-On" Hose Barb to Male Pipe Swivel



HMS-04-04

HMS-12-12



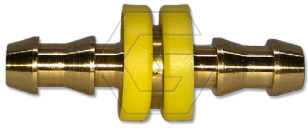
HMS-04-04

"Push-On" Hose Barb to Male Pipe Swivel is suitable for a broad range of applications, including automotive, industrial, and commercial. This fitting is made from high-quality 360 Brass and is manufactured in the United States to ISO 9001 quality specifications. Please see the below table for part specifications. Swivel for assembly convenience only. Seal is 70 durometer Teflon coated.

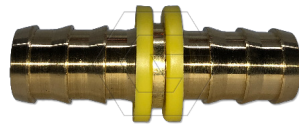
* This fitting has 3 barbs

Part Number	Hose I.D.	Thread NPTF	Barb Length	Overall Length	Thru Hole	Hex Size	Std Pkg	WT/100 pcs.	Online Ordering
HMS-04-02	1/4	1/8-27	.87	2.07	.177	9/16	500	6.3	
HMS-04-04	1/4	1/4-18	.87	2.02	.177	9/16	500	6.2	Available
HMS-06-02	3/8	1/8-27	.97	2.12	.177	9/16	400	7.3	
HMS-06-04	3/8	1/4-18	.97	2.12	.177	9/16	400	7.5	Available
HMS-06-06	3/8	3/8-18	.97	2.12	.281	11/16	200	9.0	Available
HMS-08-06	1/2	3/8-18	.97	2.12	.281	11/16	200	10.4	
HMS-08-08	1/2	1/2-14	.97	2.33	.406	7/8	150	14.8	Available
HMS-10-08	5/8	1/2-14	1.45	2.80	.406	7/8	150	18.3	
*HMS-12-12	3/4	3/4-14	1.45	2.80	.609	1 1/16	150	24.7	Available

"Push-On" Hose Barb Mender

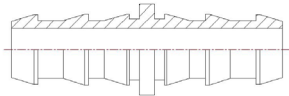


MHL-04-04



MHL-12-12

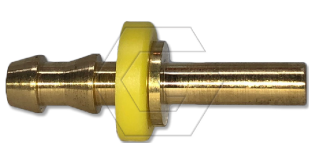
"Push-On" Hose Barb Mender is suitable for a broad range of applications, including automotive, industrial, and commercial. This fitting is made from high-quality 360 Brass and is manufactured in the United States to ISO 9001 quality specifications. Please see the below table for part specifications.



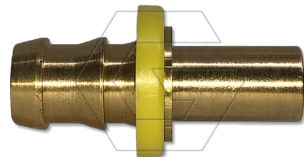
MHL-04-04

Part Number	Hose I.D.	Barb Length	Thru Hole	Overall Length	Std Pkg	WT/100 pcs.	Online Ordering
MHL-04-04	1/4	.87	.177	1.80	1000	2.9	Available
MHL-05-05	5/16	.87	.228	1.80	800	4.0	
MHL-06-06	3/8	.97	.281	2.00	600	5.4	Available
MHL-08-08	1/2	.97	.406	2.00	400	7.2	Available
MHL-10-10	5/8	1.45	.531	3.03	200	13.4	
MHL-12-12	3/4	1.45	.656	3.03	150	15.7	Available

"Push-On" Hose Barb to Straight Tube

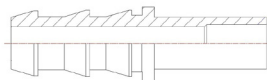


HCT-04-04



HCT-08-08

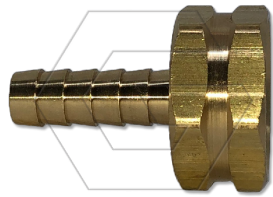
"Push-On" Hose Barb to Straight Tube is suitable for a broad range of applications, including automotive, industrial, and commercial. This fitting is made from high-quality 360 Brass and is manufactured in the United States to ISO 9001 quality specifications. Please see the below table for part specifications.



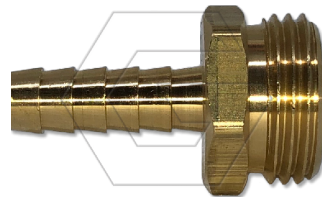
HCT-04-04

Part Number	Hose I.D.	Tube Size	Barb Length	Tube Length	Thru Hole	Overall Length	Std Pkg	Online Ordering
HCT-04-04	1/4	1/4	.87	.83	.177	1.76	500	
HCT-04-05	1/4	5/16	.87	.71	.177	1.64	500	
HCT-06-06	3/8	3/8	.97	.78	.281	1.81	500	
HCT-06-08	3/8	1/2	.97	.78	.281	1.81	250	
HCT-08-08	1/2	1/2	.97	.83	.406	1.86	250	
HCT-10-10	5/8	5/8	1.45	1.06	.532	2.61	250	

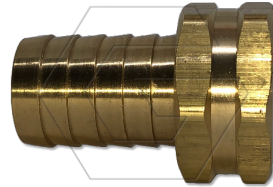
Garden Hose



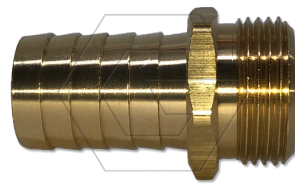
GHF-06



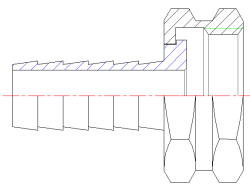
GHM-06



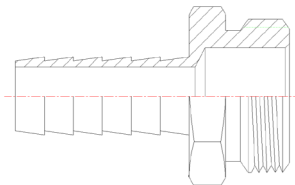
GHF-16



GHM-16



GHF-06



GHM-06

Garden Hose is suitable for a broad range of applications, including automotive, industrial, and commercial. This fitting is made from high-quality 360 Brass and is manufactured in the United States to ISO 9001 quality specifications. Please see the below table for part specifications.

* NPSH

Garden Hose, Female Swivel Washers Included

Part Number	Hose I.D.	Thread NH	Barb Length	Overall Length	Thru Hole	Hex Size	Std Pkg	WT/100 pcs.	Online Ordering
GHF-06	3/8	3/4-11 1/2	1.19	1.82	.281	1 3/16	250	12.3	Available
GHF-08	1/2	3/4-11 1/2	1.19	1.82	.406	1 3/16	250	12.7	
GHF-10	5/8	3/4-11 1/2	1.19	1.82	.531	1 3/16	250	13.2	
GHF-12	3/4	3/4-11 1/2	1.19	1.82	.625	1 3/16	250	14.5	Available
GHF-12-16	3/4	*1-11 1/2	1.19	2.02	.625	1 1/2	100	25.6	
GHF-16	1"	*1-11 1/2	1.47	2.28	.843	1 1/2	100	29.3	Available

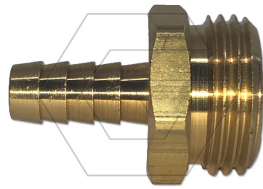
Garden Hose, Male

Part Number	Hose I.D.	Thread NH	Barb Length	Overall Length	Thru Hole	Hex Size	Std Pkg	WT/100 pcs.	Online Ordering
GHM-06	3/8	3/4-11 1/2	1.19	1.88	.281	1-1/16	250	13.0	Available
GHM-08	1/2	3/4-11 1/2	1.19	1.88	.406	1-1/16	250	13.9	
GHM-10	5/8	3/4-11 1/2	1.19	1.88	.531	1-1/16	250	14.6	
GHM-12	3/4	3/4-11 1/2	1.19	1.88	.625	1-1/16	250	15.9	Available
GHM-16	1	1 - 11 1/2	1.47	2.34	.843	1 3/8	100	26.5	

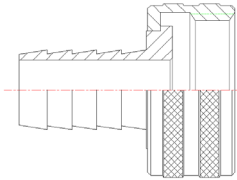
Short Barb Garden Hose



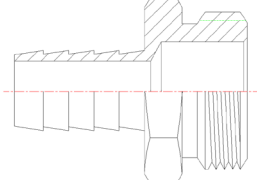
GSF-06



GSM-06



GSF-06



GSM-06

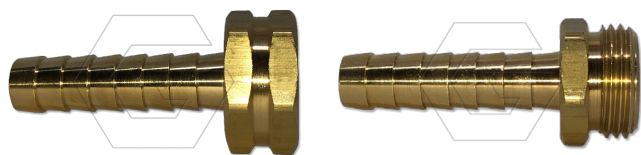
Short Barb Garden Hose is suitable for a broad range of applications, including automotive, industrial, and commercial. This fitting is made from high-quality 360 Brass and is manufactured in the United States to ISO 9001 quality specifications. Please see the below table for part specifications.

* This fitting has 3 barbs

Short Barb, Round Nut Garden Hose, Female Swivel Washers Included								
Part Number	Hose I.D.	Thread NH	Barb Length	Overall Length	Thru Hole	Std Pkg	WT/100 pcs.	Online Ordering
*GSF-04	1/4	3/4-11 1/2	.780	1.38	.177	450	8.6	Available
GSF-06	3/8	3/4-11 1/2	.875	1.48	.281	250	9.0	
GSF-08	1/2	3/4-11 1/2	.875	1.48	.406	250	9.5	Available
GSF-10	5/8	3/4-11 1/2	.875	1.48	.531	250	9.7	
GSF-12	3/4	3/4-11 1/2	.875	1.48	.625	250	10.4	Available

Short Barb Garden Hose, Male									
Part Number	Hose I.D.	Thread NH	Barb Length	Overall Length	Thru Hole	Hex Size	Std Pkg	WT/100 pcs.	Online Ordering
GSM-06	3/8	3/4-11 1/2	.875	1.75	.281	1-1/16	250	12.9	
GSM-08	1/2	3/4-11 1/2	.875	1.75	.406	1-1/16	250	13.2	Available
GSM-10	5/8	3/4-11 1/2	.875	1.75	.531	1-1/16	250	13.7	
GSM-12	3/4	3/4-11 1/2	.875	1.75	.625	1-1/16	250	14.3	Available

Extra Long Barb Garden Hose



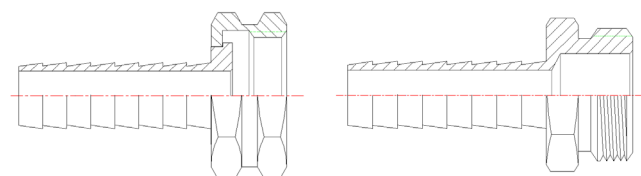
GHFL-08

GHML-08



GHFL-16

GHML-16



GHFL-08

GHML-08

Extra Long Barb Garden Hose is suitable for a broad range of applications, including automotive, industrial, and commercial. This fitting is made from high-quality 360 Brass and is manufactured in the United States to ISO 9001 quality specifications. Please see the below table for part specifications.

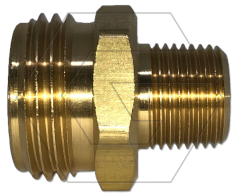
Extra Long Barb Garden Hose, Female Swivel Washers Included

Part Number	Hose I.D.	Thread NH	Barb Length	Overall Length	Thru Hole	Hex Size	Std Pkg	WT/100 pcs.	Online Ordering
GHFL-08	1/2	3/4-11 1/2	2.03	2.65	.406	1-3/16	75	14.5	
GHFL-10	5/8	3/4-11 1/2	2.03	2.65	.531	1-3/16	75	15.8	
GHFL-12	3/4	3/4-11 1/2	2.03	2.65	.625	1-3/16	75	18.2	
GHFL-16	1	1-11 1/2	2.03	2.84	.843	1-1/2	75	33.7	
		(NPSH)							

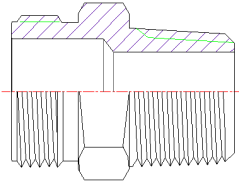
Extra Long Barb Garden Hose, Male

Part Number	Hose I.D.	Thread NH	Barb Length	Overall Length	Thru Hole	Hex Size	Std Pkg	WT/100 pcs.	Online Ordering
GHML-08	1/2	3/4-11 1/2	2.03	2.72	.406	1-1/16	75	15.7	
GHML-10	5/8	3/4-11 1/2	2.03	2.72	.531	1-1/16	75	17.2	
GHML-12	3/4	3/4-11 1/2	2.03	2.72	.625	1-1/16	75	19.4	
GHML-16	1	1-11 1/2	2.03	2.91	.843	1- 3/8	75	30.2	
		(NPSH)							

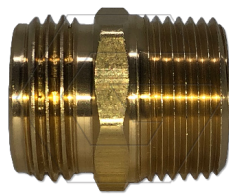
Garden Hose Adapters



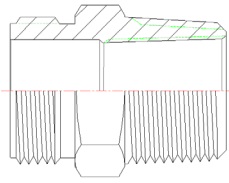
GHMP-06



GHMP-06



GHMP-12-08



GHMP-12-08

Garden Hose Adapters are suitable for a broad range of applications, including automotive, industrial, and commercial. This fitting is made from high-quality 360 Brass and is manufactured in the United States to ISO 9001 quality specifications. Please see the below table for part specifications.

Garden Hose Male to Garden Hose Male						
Part Number	GH Thread	Thru Hole	Std Pkg	WT/100 pcs.	Online Ordering	
GHMM-12	(2) 3/4-11 1/2	.750	200	12.7	Available	
Garden Hose Male to Male NPT with Female NPT						
Part Number	GH Thread	Pipe Thread NPT	Thru Hole	Std Pkg	WT/100 pcs.	Online Ordering
GHMP-12-08	3/4-11 1/2	3/4-14 NPT external 1/2-14 NPT internal	.750	200	14.5	
Garden Hose Male to Male NPT						
Part Number	GH Thread	Pipe Thread NPT	Thru Hole	Std Pkg	WT/100 pcs.	Online Ordering
GHMP-08	3/4-11 1/2	1/2-14	.562	200	13.0	Available
GHMP-06	3/4-11 1/2	3/8-18	.437	200	12.8	

Garden Hose Cap



GSNC-12

Garden Hose Cap is suitable for a broad range of applications, including automotive, industrial, and commercial. This fitting is made from high-quality 360 Brass and is manufactured in the United States to ISO 9001 quality specifications. Please see the below table for part specifications.

Part Number	Thread NH	Std Pkg	WT/100 pcs.	Online Ordering
GSNC-12	3/4-11 1/2	500	6.2	Available

Garden Hose, Female to Female Swivel



GSU-12

Garden Hose, Female to Female Swivel is suitable for a broad range of applications, including automotive, industrial, and commercial. This fitting is made from high-quality 360 Brass and is manufactured in the United States to ISO 9001 quality specifications. Please see the below table for part specifications.

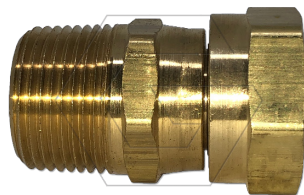
* With washers

Part Number	Thread NH	Std Pkg	Thru Hole	WT/100 pcs.	Online Ordering
GSU-12	3/4-11 1/2	250	.656	11.5	
*GSUW-12	3/4-11 1/2	250	.656	11.5	

Garden Hose Swivels



GFMG-12

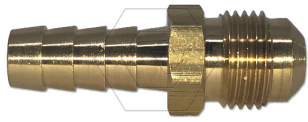


NFMP-12

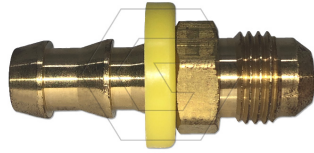
Garden Hose Swivels are suitable for a broad range of applications, including automotive, industrial, and commercial. This fitting is made from high-quality 360 Brass and is manufactured in the United States to ISO 9001 quality specifications. Please see the below table for part specifications.

Part Number	Female Thread	Male Thread	Overall Length	Std. Pkg.	Online Ordering
GFMG-12	3/4-11 1/2 NH	3/4-11 1/2 NH	1.61	100	
GFMP-12	3/4-11 1/2 NH	3/4-14 NPTF	1.92	100	
NFMG-12	3/4-14 NPSM	3/4-11 1/2 NH	1.61	100	
NFMP-12	3/4-14 NPSM	3/4-14 NPTF	1.92	100	

SAE & JIC Males

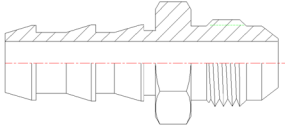


SMB-06-06

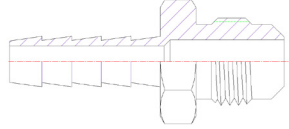


HJM-06-06

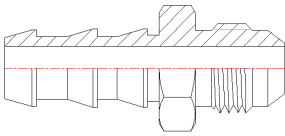
SAE & JIC Males are suitable for a broad range of applications, including automotive, industrial, and commercial. This fitting is made from high-quality 360 Brass and is manufactured in the United States to ISO 9001 quality specifications. Please see the below table for part specifications.
* Minimum Run 2,500 pcs



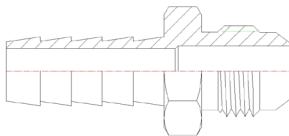
SMB-04-04



HJM-06-06



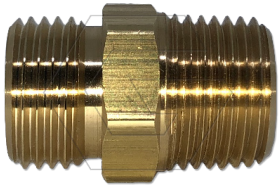
JMB-06-06



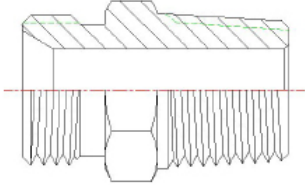
HSM-06-06

Part Number	Description	Availability	Online Ordering
JMB-05-06	5/16" Hose Std. Barb x 3/8" JIC Male	Stock	
JMB-06-06	3/8" Hose Std. Barb x 3/8" JIC Male	Stock	
SMB-04-04	1/4" Hose Std. Barb x 1/4" SAE Male	Stock	
SMB-06-06	3/8" Hose Std. Barb x 3/8" SAE Male	Stock	
HSM-04-05	1/4" Push-On Barb x 5/16" SAE Male	Stock	
HJM-06-06	3/8" Push-On Barb x 3/8" JIC Male	Stock	
HSM-06-06	3/8" Push-On Barb x 3/8" SAE Male	Spec Order*	
HSM-08-08	1/2" Push-On Barb x 1/2" SAE Male	Spec Order*	
HJM-08-08	1/2" Push-On Barb x 1/2" JIC Male	Spec Order*	
HJM-04-04	1/4" Push-On Barb x 1/4" JIC Male	Spec Order*	
HJM-06-04	3/8" Push-On Barb x 1/4" JIC Male	Spec Order*	

NPSM Male x 1/2 NPT Adaptor with 30 deg seat



BSMA-08-08

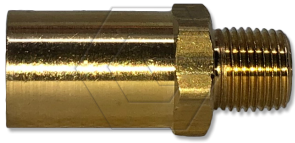


BMSA-08-08

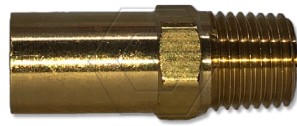
NPSM Male x 1/2 NPT Adaptor with 30 deg seat is suitable for a broad range of applications, including automotive, industrial, and commercial. This fitting is made from high-quality 360 Brass and is manufactured in the United States to ISO 9001 quality specifications. Please see the below table for part specifications.

Part Number	Thread NPT	Thread NPSM	Thru Hole	Hex Size	Std Pkg	WT/100 pcs.	Online Ordering
BSMA-04-04	1/4-18	1/4-18	.281	9/16	250	5.5	
BSMA-06-04	3/8-18	1/4-18	.343	9/16	250	5.7	
BSMA-06-06	3/8-18	3/8-18	.375	11/16	250	6.1	
BSMA-08-08	1/2-14	1/2-14	.500	7/8	250	6.1	

Grease Whip

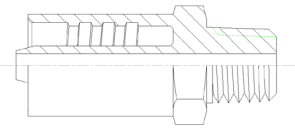


GWF-03-02



GWF-03-04

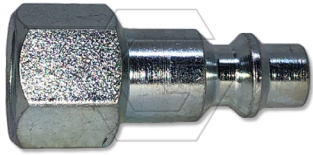
Grease Whip is suitable for a broad range of applications, including automotive, industrial, and commercial. This fitting is made from high-quality 360 Brass and is manufactured in the United States to ISO 9001 quality specifications. Please see the below table for part specifications.



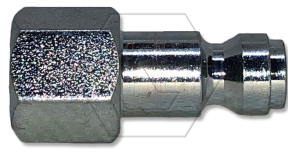
GWF-03-02

Part Number	Hose I.D.	Thread	Overall Length	Thru Hole	Std Pkg	WT/100 pcs.	Online Ordering
GWF-03-02	3/16	1/8-27 NPTF Male	1.34	.125	1,100	5.1	
GWFC-03-02	3/16	1/8-27 NPTF Male w/C'bore	1.34	.125	1,100	5.0	
GWFF-03-02	3/16	1/8-27 NPTF Female	1.34	.125	1,000	4.9	
GWDF-03-04	3/16	1/4" JIC-SAE Female SWIVEL	1.53	.125	1,000	7.1	
GWF-03-04	3/16	1/4-18 NPTF Male w/C'bore	1.53	.125	900	6.2	

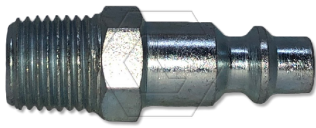
Quick Disconnect Plugs



QPF-04-04



QTF-04-04



QPM-04-04



QTM-04-04

Quick Disconnect Plugs are suitable for a broad range of applications, including automotive, industrial, and commercial. This fitting is made from high-quality electro plated 12L14 steel and is manufactured in the United States to ISO 9001 quality specifications. Please see the below table for part specifications. All Plugs Minimum Purchase 500 pcs.

Industrial Quick Coupler Plugs				
Part Number	Thread	Std Pkg	WT/100 pcs.	Online Ordering
QPM-04-04	1/4" NPT Male	1,000	5.4	Available
QPF-04-04	1/4" NPT Female	1,000	4.9	Available
QPB-04-04	1/4" Barbed Plug	1,000	4.8	
Automotive Quick Coupler Plugs				
Part Number	Thread	Std Pkg	WT/100 pcs.	Online Ordering
QTM-04-04	1/4" NPT Male	1,000	5.3	
QTF-04-04	1/4" NPT Female	1,000	5.1	
ARO Style Quick Coupler Plugs				
Part Number	Thread	Std Pkg	WT/100 pcs.	Online Ordering
QAM-04-04	1/4" NPT Male	1,000	4.9	
QAF-04-04	1/4" NPT Female	1,000	4.9	

Terms and Conditions

No. 1-TERMS OF CONTRACT: Unless Buyer shall notify KKSP Precision Machining LLC and subsidiaries including Grove Products (herein "KKSP" or the "Seller") in writing to the contrary by certified mail, return receipt requested, within three (3) days after receipt of this acknowledgment by Buyer, acceptance of the terms and conditions hereof by Buyer shall be indicated and in the absence of such notification, the sale and shipment by Seller of the goods covered hereby shall be conclusively deemed to be subject to the terms and conditions hereof. Terms and conditions appearing within buyers P.O. will not supersede this contract unless specifically quoted.

No. 2-SHIPMENT TERMS: F.O.B. shipping point, unless otherwise specified in the quotation.

No. 3-QUOTATION AND ACCEPTANCE: Unless otherwise stated, all quotations are for immediate acceptance are subject to change without notice. All orders and contracts are subject to acceptance only at Seller's home office. Typographical errors are subject to correction. Pricing is based upon firm order commitments to purchase a specified quantity with delivery to occur within one year after receipt of order. Seller reserves the right to adjust past and future pricing when quantities purchased are less than E.A.U. quoted. Seller only assumes responsibility to manufacture and supply information concerning manufacture to the extent that the quotation specifies the following including but not limited to, F.M.E.A., P.P.A.P., SPC data, and material certifications are not routinely supplied.

No. 4-CREDIT: Accounts will be opened only on approved credit. Seller reserves the right to decline delivery except for cash, whenever doubt as to Buyer's financial condition develops.

No. 5-CANCELLATION: Orders may be canceled or deliveries deferred by Buyer with written consent to Seller for all work at the unit sales price: work in-process on the basis of the percentage of completion thereof times the unit sales; raw material, unamortized tooling, engineering, and other cancellation charges incurred on the basis of cost to Seller plus handling and overhead charges. All cancellation charges to be determined at the time of cancellation or deferment.

No. 6-DELIVERIES: Seller does not assume responsibility for damages due to default or delay in production or delivery of all or any portion of any contract resulting directly or indirectly from: (A) accident to, or breakdown of Seller's plant machinery or equipment; labor disputes; embargoes; national emergency; delays of suppliers; carriers; or governmental restrictions, prohibitions, or allocations; or (B) any cause beyond the control of the Seller. In no event shall Seller be liable for any consequential, special, or contingent damages arising out of Seller's default or delay in filling this order.

Unless otherwise agreed between Buyer and Seller, orders are accepted for delivery as fast as manufactured by complete shipment packed in bulk. If either party has the right to make or demand delivery in lots, the price may be demanded for each lot.

No. 7-SAMPLES: If requested, Seller will submit samples for approval when commencing operations upon any order, but does so with the understanding that his machines are to be run immediately after they are set correctly to Buyer's accepted specifications, and Seller will assume responsibility for having the product in conformity with such specifications while awaiting Buyer's approval. Any changes in original specifications will be made only at Buyer's direction and expense. If changes are to be made, Seller must be notified at once by telephone or wire followed by written confirmation. Products produced to blueprint specification while awaiting sample approval by Buyer are responsibility of Buyer, regardless of quantity.

No. 8-CLAIMS: If Buyer claims delivery of material not as ordered, he must notify Seller within five (5) days of receipt of shipment. If such claim is sustained, Seller shall repair, replace, credit, or complete order within the limitations of No.6 QUANTITIES. Charges for repair or inspection of parts by Buyer without prior authorization cannot be honored. Seller shall have the option of inspecting the goods on Buyer's premises or of taking back the goods and deciding whether to replace goods or credit Buyer. Seller will only be liable for replacing defective goods, any charges incurred as a result of defective goods to be borne by Buyer, unless agreed upon and formally acknowledged by Seller in writing. Claims for shortage of goods must be presented within five (5) days from the date of receipt of goods and must state the packing slip number, weight including tape and the method used in arriving at a count of the parts. Any claim for error in weight or shortage not presented in accordance with this provision will conclusively be deemed waived. Seller will not allow claims on those goods further processed by Buyer resulting in change of dimensions or characteristics from parts ordered.

No. 9-TOLERANCES: All dimensions must be limited by a specific tolerance. When not specified, it is understood that commercial tolerances apply. Decimal, all diameters plus or minus .005". Dimensions, lengths plus or minus 1/64". Angles, plus or minus 2-1/2 Degrees. Fractional Dimensions, diameter plus or minus .010". Drilled hole tolerance will be open, unless otherwise specified by the Buyer. Samples are to be considered as denoting fractional dimensions, unless otherwise specified and dimensions of samples will be considered "mean" dimensions.

When Buyer purchases to his own specifications, Seller will not be responsible for the design, fit or function of parts supplied and the KKSP Precision Machining, LLC Terms and Conditions are incorporated by reference herein and shall apply.

No. 10-INSPECTION: Inspection by Seller is made on a sampling basis, if 100% inspection is required, it is at the Buyer's expense. Acceptable quality levels including the designation of sampling plans must be established by Buyer in writing, prior to quotation by Seller. Otherwise Seller reserves the right to adjust its quotation or delivered part price in consideration of a subsequent establishment of an A.Q.L. by Buyer. Statistical Process Control and special cause variation must be specifically addressed and formally acknowledged within the quotation or inspection will remain on a sampling basis.

No. 11-SURFACE FINISH: Grove Products products are manufactured and handled in bulk so Buyer should expect surface finishes which include minor marks associated with bulk handling, and part-to-part interaction associated with the manufacturing processes. In addition, because both physical and cosmetic characteristics of metal may change over time from exposure to elements, Grove Products shall not be responsible for changes in part characteristics after they are shipped from our facilities.

No. 12-SHIPMENT: In ordering, Buyer should state explicitly the method of shipment preferred and, in the absence of shipping directions, Seller will use discretion forwarding by air or rail express, truck or parcel post when packages are small and, therefore, subject to loss in transit. Shipment will be insured at Buyer's expense, unless otherwise specified by Buyer. All goods are sold F.O.B. shipping point, so Buyer assumes freight cost and liability for any loss or damage to goods once the goods have left Seller's premises. Seller assumes no liability for premium freight, including, but not limited to, late deliveries and/or defective product, unless agreed to and formally acknowledged by Seller in writing.

No. 13-TAXES: Taxes imposed by any present or future law of federal, state, county, or municipal authority on the manufacture, sale or use of the articles purchased hereunder and are required to be paid by Seller shall be added to the amount to be paid by Buyer. Buyer shall furnish evidence of exemption, if applicable. Customs duties or taxes are not included in prices. Buyer shall reimburse Seller for any such duties or taxes as Seller may pay or subsequently be assessed.

No. 14-WARRANTY: Seller warrants that goods manufactured by him will conform to the drawings and specifications furnished by Buyer with consideration of No. 10-INSPECTION. If goods manufactured by Seller fail to function under normal and proper use within a period of three (3) months because defects in material or workmanship, and written notice is received by Seller, no later than six (6) months after date of receipt of such goods by Buyer, Seller will at his option credit, repair, or replace such products determined by Seller to be defective. Seller is only responsible for credit or replacement of defective product.

Seller shall have the option of inspecting the goods on Buyer's premises or authorizing their return. No goods are to be returned without written consent, nor shall the Seller be liable for any expense, including inspection expenses, incurred by Buyer in order to remedy defects in sold goods.

Products manufactured by others, but furnished by Seller are limited to the original manufacturer's warranty and Seller shall not be liable under any circumstances for defects in such products.

Because goods hereunder are utilized in Buyer's products and are used or combined by Buyer with other equipment or components not furnished by Seller, Buyer agrees to indemnify Seller for all claims resulting from the use or incorporation of sold goods in the Buyer's product.

Any controversy or claim arising out of or related to this contract, or the breach thereof, must be commenced within one (1) year after the cause of action has occurred. To the extent that Seller is required to commence legal action in order to enforce Buyer's payment obligation for goods supplied, Seller shall be entitled to recover attorney fees associated with such collection efforts.

IT IS EXPRESSLY AGREED THAT THIS WARRANTY IS IN LIEU OF ANY AND ALL OTHER WARRANTIES AND LIABILITIES, EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY WARRANTY OR MERCHANTABILITY OR FITNESS FOR ANY PURPOSE AND ANY LIABILITY FOR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OF THE PRODUCT SOLD HEREUNDER. THE FOREGOING STATES SELLER'S ENTIRE AND EXCLUSIVE LIABILITY AND BUYER'S EXCLUSIVE AND SOLE REMEDY. SELLER WILL IN NO EVENT BE LIABLE FOR ANY CONSEQUENTIAL, SPECIAL OR CONTINGENT DAMAGE OR EXPENSE ARISING DIRECTLY OR INDIRECTLY FROM ANY DEFECT IN ITS GOODS OR FROM THE USE THEREOF, NOR IS ANY OTHER PERSON AUTHORIZED TO ASSUME FOR SELLER ANY SUCH LIABILITY.