

# CATALOG

Automotive Hose, Tubing, and Components



BrakeQuip

Catalog

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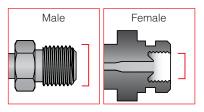
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# THREAD IDENTIFICATION

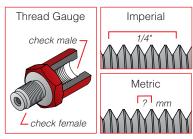
# Tool: Thread ID Kit (BQ2100)



# 1. Identify the diameter

Diameter × Pitch

For male fittings, measure the outer diameter. It will be slightly less than the nominal size. For female fittings, measure with thread gauges.



## 2. Identify the pitch

Diameter × Pitch

After determining the diameter, use thread gauges to determine the pitch. For imperial sizes, the pitch is the thread count in a 1-inch length. (A simple way to calculate it is to count threads within 1/4" and multiply by 4.)

For metric sizes, the pitch is the distance in millimeters between threads.

## **Brake System Threads**

### IMPERIAL also known as SAE

3/8-20 BSF 3/8-24 UNF 7/16-20 UNF 7/16-24 UNS 1/2-20 UNF 9/16-18 UNF

9/16-20 UNS

Common imperial threads.

METRIC

M9×1 M10×1 M10×1.25 M10×1.5

M11×1.25 M12×1

M12×1.25 M12×1.5 M14×1.5

UNF = Unified National Fine UNS = Unified National Special BSF = British Standard Fine

# Important Notes

• Similar Diameters: 3/8" & 10 mm

An M10 male will not start in a 3/8" female. To identify a female thread, use the M10 male end to see if it will start the thread. To identify a male thread, use the 3/8-24 female.

• Similar Diameters: 7/16" & 11 mm

A 7/16" male will not start in an M11 female. To identify a female thread, use the 7/16" male end to see if it will start the thread. To identify a male thread, use the M11 female.

Both Metric & Imperial

It is possible to have metric on one end and imperial on the other.

# Global Guide

Asian Metric (99%)

European (not UK) Metric (99%)

UK (1930 - 1976) Imperial

UK (1976 - present) Metric

USA (1930 - 1980) Imperial

USA (1980 - present) Imperial & Metric

Common metric threads.

# FITTING IDENTIFICATION

Follow these instructions to find a BrakeQuip fitting that is equivalent to an unknown fitting in hand.

### 1. Select the crimp

Part Prefix	Group
HF	STANDARD HOSE FITTING Fittings for both rubber & braided stainless steel hose
LP	LOW PROFILE Fittings for braided stainless steel hose
PSHF	POWER STEERING HOSE FITTING Fittings for power steering hose

# 2. Identify the thread, if applicable

If the fitting is threaded, use the Thread ID Kit, BQ2100, to properly identify the thread. It is important to note whether the thread is Imperial (SAE) or Metric.

# 3. Select the fitting group

Group	Fitting Type MISCELLANEOUS	HF examples	LP examples
	Swivels, lifesavers, universals, and other fittings that do not belong to another group.	HF01	LP01-3
-B	BANJO Organized by shape, then hole size and width.	HF <u>B</u> 09	LP <u>B</u> 09-10M
-C	CENTER SUPPORT Organized by mount type.	HF <u>C</u> 01	LP <u>C</u> 01
-IF	IMPERIAL FEMALE Organized by mount type, then thread and seat type.	HF <u>IF</u> 02	LP <u>IF</u> 02-7
-IFX	IMPERIAL FEMALE WITH EXTERNAL THREAD Organized within Imperial Female group as Bulkhead Mount.	HF <u>IFX</u> 01	LP <u>IFX</u> 01
-IM	IMPERIAL MALE Organized by mount type, then thread.	HF <u>IM</u> 01	LP <u>IM</u> 01-6
-MF	METRIC FEMALE Organized by mount type, then thread and seat type.	HF <u>MF</u> 04	LP <u>MF</u> 04
-MFX	METRIC FEMALE WITH EXTERNAL THREAD Organized within Metric Female group as Bulkhead Mount.	HF <u>MFX</u> 01	
-MM	METRIC MALE Organized by mount type, then thread.	HF <u>MM</u> 03	LP <u>MM</u> 03-M10X1

## 4. Identify the fitting by fitting details

Identify fittings within a given fitting group through detailed measurement. For some attributes you will need a ruler or an angle gauge, BQ2033.

# **SPECIAL FINISHES**

Select fittings are available in a variety of special finishes to fit your needs. To see current offerings, visit dealer.brakequip.com. For special order terms, contact sales@brakequip.com.



### **Brass**

C3600 brass fittings are popular for salt water applications.

P/N suffix -B



# Zinc-Nickel Plating

Developed as a cost-efficient alternative for corrosive environments, zinc-nickel plating is 2-3 times more protective than common trivalent plating. The finish is a clean, matte gray.

P/N suffix -Z



### Stainless Steel

Stainless steel fittings are the premium choice for chemical and corrosion resistance.

P/N suffix -SS



### **Anodized Aluminum**

Anodized aluminum is durable, lightweight, and resistant to heat and corrosion. Straight and pre-bent low profile banjos are available in black, red, or blue.

P/N suffix -A + color, example: LPB01-10MABL



### Chrome Plating

Some low profile fittings are readily available in lustrous chrome.

P/N suffix -C

# **EQUIPMENT**

### Machines

All-In-One Crimp and Test Unit	8
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Brake Hose Pressure Tester	8
Equipment Aids	
Measurement	9
Machine	9
Fluids	9
Crimp Setting	
Front Crimp-Setting	10
Rear Crimp-Setting	10
General Crimp-Setting	10
Testing	
Tools	11
Test Cones	12

# **MACHINES**

# **ALL-IN-ONE CRIMP AND TEST UNIT**

### **BQ1005-6**

A combination crimp-and-test unit, the All-in-One Unit is very easy to use and has a compact design that will fit in any shop. Its process control features make it equally suitable for single prototypes or production runs.



# **VERSATILE CRIMPING SYSTEM**

### **BQ1006-2**

The Versatile Crimping System (VCS) uses BrakeQuip's proven 8-finger crimp head combined with an air-over-hydraulic pump for a simple, quick, and reliable crimping system.



# **BRAKE HOSE PRESSURE TESTER**

### **BQ1013A**

The Stand-Alone High-Speed Tester is an air-over-hydraulic brake hose pressure tester.



/// Machine instructions are in the machine manuals.

# **EQUIPMENT AIDS**

# **MEASUREMENT**

Angle gauge

**BQ2033** 



Constriction gauge

**BQ2001W** 



# **MACHINE**

Calibration tool

**BQ35** 



10mm drill bit

**BQ2010** 



This drill bit is designed to be used with lifesavers.

# **FLUIDS**

Lubricant and test fluid

**BQ3980** 



Hose assembly lubricant

BQ2696-R3



Use BQ3980 with the All-in-One Unit, BQ1005, and the Brake Hose Pressure Tester, BQ1013A.

# **CRIMP SETTING**

# FRONT CRIMP-SETTING

Standard

**BQ2008** 



Standard

**BQ2002** 



Low profile

**BQ2110** 



Power steering

**BQ2091A** 



# **REAR CRIMP-SETTING**

Standard

**BQ1021A** 



Standard on braided

**BQ1027** 



Low profile

**BQ1029** 



Power steering

**BQ1026** 



# **GENERAL CRIMP-SETTING**

Crimp-setting spade

**BQ37** 



Crimp-setting clip

**BQ1014** 



/// Crimp setting instructions are in the machine manuals.

# **TESTING**

# **TOOLS**

Fitting support spade

**BQ23** 



# Fitting test adapter

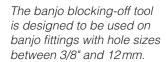
### **BQ1022**



Use BQ1022 to test fittings before crimping.

# Banjo blocking-off tool

### **BQ1020R**





# **TESTING**

CONTINUED

# **TEST CONES**

### Universal cones

**BQ206** 



**BQ206H** 



# Long-head cones

**BQ208** 



**BQ208H** 



### Female swivel cones

**BQ206S** 

drill-point seat



**BQ206HS** 

drill-point seat



**BQ207** 

inverted seat



**BQ207H** 

inverted seat



### Cone shank

**BQ21** 

Use BQ21 for banjo fittings.



/// Test cone instructions are in the machine manuals.

# BRAKE & CLUTCH

Hose		Imperial Female	
Rubber Brake Hose	14	Bolt Mount	59
Braided Brake Hose	14	Bracket Mount	62
Accessories		Bulkhead Mount	64
Rubber Hose Accessories	15	Clip Mount	66
Braided Hose Accessories	17	Standard	71
Grommets	18	Metric Female	
Fitting Accessories	19	Bolt Mount	72
Fitting Tools	19	Bracket Mount	73
General Fittings		Clip Mount	74
Female Swivel	20	Spline Mount	83
Male Swivel	22	Bulkhead Mount	83
Universal	26	Imperial Male	
Lifesaver	27	JIC Male	84
Center Joiner	28	Bolt Mount	84
Clutch	29	Bulkhead Mount	84
Compression	29	Standard	85
Block Banjo		Metric Male	
Universal	30	Bulkhead Mount	88
8 mm hole	30	Clip Mount	89
10mm hole	31	Standard	89
11mm hole	38	Center Support	
12mm hole	40	Bracket Mount	91
3/8" hole	40	Clip Mount	95
7/16" hole	46	Brackets	
Round Banjo		Fitting Brackets	97
8mm hole	47	Center Brackets	102
10mm hole	47	Centers with Grommet	104
11 mm hole	57	11 mm hole	116
12mm hole	57	7/16" hole	116
15mm hole	57		
3/8" hole	58		
7/16" hole	58		

# HOSE



Compatible with DOT 3, 4, 5, and most non-petroleum based brake fluids, including silicone. Warning: no mineral oils should be used.



Compatible with DOT 3, 4, 5 (silicone-based), and 5.1 brake fluids, plus oil and most fluids. Warning: no gases or acids should be used.

# **RUBBER HOSE ACCESSORIES**

# **Spring Protectors**

### **BQ202**

Length 50 cm



### **BQ11**

Length 16" Sold in packs of 6



### **Rubber Protectors**

### **BQ201**

Sold in 50ft section



rubber

### **BQ203**

Length



rubber

### Strain Relievers

### **BQ200**

Sold in 10ft section



rubber

### **BQ296**

Length 9cm



### Heat Protection Sleeve

### **BQ312-BK**

Sold in 10ft section



CONTINUED

# Plastic Clips

**BQ65** 

Sold in packs of 6



**BQ66** 

Sold in packs of 6



**BQ67** 

Sold in packs of 6



**BQ68** 

Sold in packs of 6



**BQ69** 

Sold in packs of 6



**BQ70** 

Sold in packs of 6



**BQ97** 

Sold in packs of 6



**BQ98** 

Sold in packs of 6



# Rubber Brake Hose Cutter



The blade has two cutting points for double life.

Replacement blade BQ2101B

CONTINUED

# **BRAIDED HOSE ACCESSORIES**

# **Crimp Shell Inserts**

### **BQ251-BK**

Color

black



**BQ251-BL** 

Color

blue



**BQ251-GD** 

Color

gold



**BQ251-GR** 

Color green



**BQ251-PP** 

Color

purple



**BQ251-RD** 

Color red



**BQ251-SV** 

Color

silver



# Center Support Sleeves

### **BQ310**

Sold in

10ft sections

Use with standard profile center support fittings on BQ301 unjacketed braided brake hose.

### **BQ311**

Sold in

10ft sections

Use with standard profile center support fittings on BQ303 jacketed braided brake hose (all colors).



## Small Braided Hose Shears

**BQ2104** 



# Skiving Tool

**BQ436** 

Skives lengths for Standard and Low Profile crimps.

Uses a common No. 9 single-edge razor blade.



CONTINUED

# **GROMMETS**

These black rubber grommets are for use with rubber brake hose. A braided hose equivalent is listed, if available. All rubber hose grommets can be used on braided hose in conjunction with a center fitting adapter tube, BQ311.

### **BQ210**

Diameter 30 mm Overall length 10 mm

Braided hose BQ210BR



### **BQ211**

Diameter 18 mm Overall length 25 mm

Braided hose BQ211BR



### **BQ212**

Diameter 22 mm Overall length 41 mm



### **BQ213**

Diameter 30 mm
Overall length 32 mm

Braided hose BQ213BR



### **BQ215**

Diameter 25 mm Overall length 22 mm

Braided hose BQ215BR



### **BQ216**

Diameter 28 mm Overall length 32 mm



### **BQ217**

Diameter 25.5 mm Overall length 29 mm



### **BQ218**

Diameter 25 mm
Overall length 16 mm

Braided hose BQ288



### **BQ233**

Diameter 26 mm Overall length 24 mm



### **BQ234**

Diameter 19 mm Overall length 34 mm

Braided hose BQ289



### **BQ272**

Diameter 25.4 mm Overall length 10 mm



### **BQ273**

Diameter 26 mm Overall length 8 mm



### **BQ274**

Diameter 18 mm Overall length 62 mm



### **BQ275**

Diameter 32 mm Overall length 24 mm



CONTINUED

**BQ276** 

Diameter18 mmOverall length10 mm

Braided hose BQ294



### **BQ277**

Diameter 14 mm Overall length 28 mm



# FITTING ACCESSORIES

# E-Clip

### **BQ12**

Available in packs of 20



# **Bracket Retaining Screws**

### **BQ71**

Available in packs of 50



# **FITTING TOOLS**

# Standard Banjo Bending Bar

BQ22A



# Low Profile Banjo Bending Bar

BQ22C



# Banjo Bending Tool Holder

BQ22B



/// Banjo bending instructions are in the hose assembly manual.

# **FEMALE SWIVEL** 5/16-24 UNF

### HF61

Thread 5/16-24 UNF 37° drill-point Seat type

Hex 1/2" Overall length 35 mm



# **FEMALE SWIVEL** 3/8-24 UNF

### HF09

Thread 3/8-24 UNF Flare 37° double Bend straight 3/16" Tube size

Overall length 58 mm

HF09SS Stainless

### HF09W

Thread 3/8-24 UNF 37° drill-point Seat type Overall length 36 mm

Low profile LP09W-6 LP chrome LP09W-6C



### **HF10**

Thread 3/8-24 UNF Flare 37° double 45° Bend Tube size 3/16" Overall length 52 mm

LP10W-6 Low profile LP chrome LP10W-6C



### **HF11**

3/8-24 UNF Thread Flare 37° double 90° Bend Tube size 3/16" Overall length 45 mm

Stainless HF11SS LP11-6, LP11W-6 Low profile LP chrome LP11W-6C



**CONTINUED** 

# **FEMALE SWIVEL** 7/16-20 UNF

### **HF12**

Thread 7/16-20 UNF Flare 37° double Bend straight Tube size 1/4"

Overall length 50 mm





### **HF13**

Thread 7/16-20 UNF Flare 37° double Bend 45°
Tube size 1/4"
Overall length 56 mm





### **HF14**

Thread 7/16-20 UNF
Flare 37° double
Bend 90°
Tube size 1/4"
Overall length 48 mm

Low profile LP14W-7 LP chrome LP14W-7C



### **HF410**

Thread 7/16-20 UNF Flare 45° double Bend 45° Tube size 1/4" Overall length 56 mm



# **FEMALE SWIVEL** M12×1

### **HF102**

 $\begin{array}{lll} \mbox{Thread} & \mbox{M12}\times\mbox{1} \\ \mbox{Flare} & 45^{\circ}\mbox{ double} \\ \mbox{Bend} & \mbox{straight} \\ \mbox{Tube size} & 1/4" \\ \mbox{Overall length} & 50\mbox{ mm} \end{array}$ 



CONTINUED

# MALE SWIVEL 3/8-24 UNF

### **HF16**

Thread 3/8-24 UNF Flare 45° double Bend straight Tube size 3/16"

Overall length 57 mm



Brass HF157BT
Stainless HF16SS
Low profile LP16-6
LP chrome LP16-6C
LP stainless LP16-6SS

### **HF17**

Thread 3/8-24 UNF Flare 45° double Bend 90° Tube size 3/16" Overall length 49 mm

Stainless HF17SS
Low profile LP17-6
LP chrome LP17-6C
LP stainless LP17-6SS



### HF33

Thread 3/8-24 UNF Flare 45° double Bend 45° Tube size 3/16" Overall length 65 mm



LP33-6SS



### HF43SS

Thread 3/8-24 UNF Flare 45° single Bend straight Tube size 5 mm Overall length 69 mm



### HF45SS

Low profile

LP chrome

LP stainless

Thread 3/8-24 UNF Flare 45° single Bend 35° Tube size 5 mm Overall length 112 mm





### **HF63**

Thread 3/8-24 UNF Flare 45° double Bend straight Tube size 3/16" Overall length 88 mm



### **HF81**

Thread 3/8-24 UNF Flare bubble Bend straight Tube size 3/16"

Overall length 76 mm



### **HF150**

Thread 3/8-24 UNF Flare 45° double Bend straight Tube size 3/16" Hex mount 5/8" Overall length 45 mm



### CONTINUED

### **HF164Z**

Thread 3/8-24 UNF
Flare 45° double
Bend straight
Tube size 3/16"
Hex mount 9/16"
Overall length 51 mm



Brass HF164BT

# MALE SWIVEL 7/16-24 UNS

HF07SS

### HF04

Thread 7/16-24 UNS
Flare 45° double
Bend straight
Tube size 1/4"
Overall length 8 mm



### HF06

Thread 7/16-24 UNS
Flare 45° double
Bend 90°
Tube size 1/4"
Overall length 61 mm

Low profile LP06-7



Thread 7/16-24 UNS
Flare 45° double
Bend 45°
Tube size 1/4"
Overall length 76 mm



### **HF15**

Thread 7/16-24 UNS
Flare 45° double
Bend straight
Tube size 1/4"
Overall length 52 mm

Stainless HF15SS



Stainless

Thread 7/16-24 UNS
Flare 45° double
Bend straight
Tube size 1/4"
Hex mount 16 mm
Overall length 54 mm



### **HF94**

Thread 7/16-24 UNS
Flare 45° double
Bend 60°
Tube size 1/4"
Overall length 81.7 mm



### **HF100**

Thread 7/16-24 UNS
Flare 45° double
Bend straight
Tube size 1/4"
Hex mount 16 mm
Overall length 81 mm



### **HF101**

Thread 7/16-24 UNS
Flare 45° double
Bend 90°
Tube size 1/4"
Hex mount 16 mm

Overall length 82.2 mm



49 mm

**CONTINUED** 

### **HF135**

Overall length

Thread 7/16-24 UNS
Flare 45° double
Bend straight
Tube size 1/4"
Hex mount 16 mm



### **HF145**

Thread 7/16-24 UNS
Flare 45° double
Bend 110°
Tube size 1/4"
Overall length 135 mm



# MALE SWIVEL 1/20-20 UNF

### **HF18**

Thread 1/2-20 UNF Flare 45° double Bend straight Tube size 5/16"

Overall length 80 mm



### **HF28**

Thread 1/2-20 UNF Flare 45° double Bend straight Tube size 5/16" Hex mount 16 mm Overall length 60 mm



### HF29

Thread 1/2-20 UNF Flare 45° double Bend 90° Tube size 5/16" Overall length 62 mm



### HF92

Thread 1/2-20 UNF Flare 45° double Bend 90° Tube size 3/16" Overall length 53.3 mm



### **HF142**

Thread 1/2-20 UNF
Flare 45° double
Hex 1/2"
Bend 103°
Tube size 1/4"
Overall length 128.3 mm



### **HF154**

Thread 1/2-20 UNF Flare 45° double Hex 1/2"
Tube size 1/4"
Overall length 120 mm



# MALE SWIVEL 9/16-18 UNF

### HF98

Thread 9/16-18 UNF Flare 45° double Bend 90° Tube size 1/4" Overall length 45.1 mm



CONTINUED

# **MALE SWIVEL** M10×1

### HF08

 $\begin{array}{lll} \text{Thread} & \text{M10}\times\text{1} \\ \text{Flare} & \text{DIN} \\ \text{Bend} & \text{straight} \\ \text{Tube size} & 3/16 \text{"} \\ \text{Overall length} & 70 \, \text{mm} \end{array}$ 



### **HF34**

Thread  $M10 \times 1$ Flare  $45^{\circ}$  double Bend straight Tube size  $3/16^{\circ}$ Overall length  $71 \, \text{mm}$ 



LP stainless LP34-M10X1 LP stainless LP34-M10X1SS

### **HF82**

 $\begin{array}{lll} \text{Thread} & \text{M10}\times\text{1} \\ \text{Flare} & \text{DIN} \\ \text{Bend} & \text{straight} \\ \text{Tube size} & 3/16 \text{"} \\ \text{Overall length} & 71\,\text{mm} \end{array}$ 



Low profile LP82-M10X1 LP zinc-nickel LP82-M10X1Z

### **HF99**

Thread  $M10 \times 1$ Flare DIN Bend 95° Tube size 3/16" Overall length 49.9 mm



### **HF115**

Thread M10 $\times$ 1
Flare DIN
Bend 90 $^{\circ}$ Tube size 3/16"
Overall length 90.6 mm



### **HF116**

Thread  $M10 \times 1$ Flare DIN Bend straight Tube size 3/16" Overall length  $60.5 \, \text{mm}$ 



### **HF117**

 $\begin{array}{lll} \mbox{Thread} & \mbox{M10}\times\mbox{1} \\ \mbox{Flare} & \mbox{DIN} \\ \mbox{Bend} & 25^{\circ} \\ \mbox{Tube size} & 3/16" \\ \mbox{Overall length} & 57.2 \mbox{mm} \end{array}$ 



### **HF158**

 $\begin{array}{lll} \mbox{Thread} & \mbox{M10}\times\mbox{1} \\ \mbox{Flare} & \mbox{DIN} \\ \mbox{Bend} & \mbox{90}^{\circ} \\ \mbox{Tube size} & \mbox{3/16}^{"} \\ \mbox{Overall length} & \mbox{42}\,\mbox{mm} \end{array}$ 



Low profile LP125

### **HF310**

 $\begin{array}{lll} \mbox{Thread} & \mbox{M10}\times\mbox{1} \\ \mbox{Flare} & \mbox{DIN} \\ \mbox{Bend} & \mbox{straight} \\ \mbox{Tube size} & 3/16" \\ \mbox{Overall length} & 72\,\mbox{mm} \end{array}$ 



### **HF403**

Thread M10 $\times$ 1 Flare 45 $^{\circ}$  double Bend 90 $^{\circ}$ Tube size 3/16 $^{\circ}$ Overall length 65 mm



CONTINUED

# **MALE SWIVEL** M12×1

### **HF77**

 $\begin{array}{lll} \text{Thread} & \text{M12}\times 1 \\ \text{Flare} & \text{DIN} \\ \text{Bend} & \text{straight} \\ \text{Tube size} & 1/4" \\ \text{Overall length} & 57\,\text{mm} \end{array}$ 



### **HF137**

 $\begin{array}{lll} \mbox{Thread} & \mbox{M12}\times\mbox{1} \\ \mbox{Flare} & \mbox{DIN} \\ \mbox{Bend} & \mbox{90}^{\circ} \\ \mbox{Tube size} & \mbox{1/4}^{"} \\ \mbox{Overall length} & \mbox{57}\,\mbox{mm} \end{array}$ 



### **HF404**

Thread M12×1
Flare 45° double
Bend 90°
Tube size 3/16"
Overall length  $65 \, \text{mm}$ 



# **UNIVERSAL**

### **HF02**

Tube size 3/16"

Overall length 99 mm

Low profile

LP02



# HF03

Tube size 1/4"

Overall length 99 mm

Low profile

LP03



## HF139

Tube size 1/4"
Overall length 200 mm

/// Instructions for using universal fittings are in the hose assembly manual.

**CONTINUED** 

# **LIFESAVER**

If the desired hose fitting is unavailable, reuse the customer's original fitting by replacing the crimp shell with a lifesaver. BrakeQuip offers six lifesavers for use with standard brake fittings as well as low-profile and power steering versions.

# Center Support Lifesaver

### HF05

Overall length 23 mm



# 7 mm Shank Banjo Lifesaver

### **HF120**

Tube size 7 mm

Overall length 27 mm



Use with 7mm shank banjo fittings.

### 3/16" Lifesaver

### HF01

Tube size 3/16"

Overall length 27 mm

Stainless HF01SS Low profile LP01-3



# 3/16" Tube-Style Lifesaver

### **HF155SS**

Tube size 3/16"

Overall length 27 mm



### 1/4" Lifesaver

### **HF26**

Tube size 1/4"

Overall length 27 mm

Low profile LP01-4



## 5/16" / 8mm Tube-Style Lifesaver

### **HF27**

Tube size 5/16"

Overall length 27 mm

Low profile LP01-5



/// Instructions for using lifesavers are in the hose assembly manual.

Power steering lifesavers are on page 129.

Low-profile lifesavers are on page 111.

Brazing rods are on page 146.

CONTINUED

# **CENTER JOINER**

### **HF37**

Mount hole8.3 mm(2)Tube size8 mmOverall length86 mm



### **HF38**

Mount hole8.3 mm (2)Tube size8 mmOverall length86 mm



### **HF71**

Mount hole
Tube size
Overall length

8.2 mm 7 mm 130 mm



### **HF72**

Mount hole8.2 mmTube size7 mmOverall length130 mm



### **HF73**

Mount hole8.3 mmTube size7 mmOverall length95 mm



### **HF74**

Mount hole8.3 mmTube size7 mmOverall length95 mm



### HF300

Mount hole Tube size Overall length 6.6 mm 8 mm 190 mm



CONTINUED

# **CLUTCH**

**HF35** 



**HF62** 



**HF83** 

O-ring included.



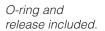
**HF114** 

Low profile LP156

O-ring included.



HF125





# **COMPRESSION**

Compression fittings are not recommended for hydraulic braking systems. These fittings are intended for clutch hydraulic hoses and general industrial hydraulic applications.

HF<sub>30</sub>

Tube size 3/16" Hex 1/2"



HF31

Tube size 1/4" Hex 14 mm

Stainless HF31SS



# **10 MM HOLE** UNIVERSAL

### HFB22

Hole 10 mm
Thickness 11.5 mm
Width 19 mm
Bend straight
Tube size 5/16"
Overall length 172 mm



# 7/16" HOLE UNIVERSAL

### HFB23

Hole 7/16"
Thickness 1/2"
Width 19mm
Bend straight
Tube size 5/16"
Overall length 172mm



Use universal banjos with the 5/16 tube nut, BQ2578, and the 1/2-20 UNF female fitting, HFIF06.

# **8 MM HOLE** 17 MM WIDTH

### **HFB112**

Hole 8 mm
Thickness 14 mm
Width 17 mm
Bend 35°
Overall length 50 mm



# **10 MM HOLE** 16 MM WIDTH

### HFB<sub>13</sub>

Hole 10 mm
Thickness 5/8"
Width 16 mm
Angle straight
Overall length 42 mm



### HFB81

Hole 10 mm
Thickness 23 mm
Width 16 mm
Angle 50°
Overall length 46 mm



# **10 MM HOLE** 17 MM WIDTH

### HFB17

Hole 10 mm
Thickness 11.5 mm
Width 17 mm
Angle 35°
Overall length 78 mm



### HFB21

 Hole
 10 mm

 Thickness
 11.5 mm

 Width
 17 mm

 Bend
 50°

 Overall length
 72 mm



**CONTINUED** 

### HFB46

Hole 10 mm
Thickness 11 mm
Width 17.6 mm
Angle 10°
Overall length 44 mm



### **HFB100**

Hole 10 mm
Thickness 8 mm
Width 17 mm
Bend straight
Overall length 51 mm



### **HFB144**

Hole 10 mm
Thickness 11.5 mm
Width 17 mm
Angle straight
Overall length 46 mm



### **HFB300**

Hole 10 mm
Thickness 11.4 mm
Width 17 mm
Angle 15°
Overall length 50 mm



# 10 MM HOLE 18 MM WIDTH

### **HFB236**

Hole 10 mm
Thickness 1/2"
Width 18 mm
Bend 90°
Overall length 71 mm



### **HFB367**

Hole10 mmThickness11 mmWidth18 mmBend90°Overall length60 mm



### **HFB397**

Hole10 mmThickness8.5 mmWidth18 mmBend60°Overall length78 mm



### **HFB474**

Left pair

Hole 10 mm
Thickness 1/2"
Width 18 mm
Overall length 67.6 mm

HFB475



### **HFB475**

Hole 10 mm
Thickness 1/2"
Width 18 mm
Overall length 67.6 mm





**CONTINUED** 

### **HFB493**

Hole 10<sub>mm</sub> 1/2" **Thickness** Width 18<sub>mm</sub> Bend 90° Overall length 70 mm



Low profile LPB493-10M Right pair **HFB494** 

### **HFB494**

Hole 10 mm **Thickness** 1/2" Width 18<sub>mm</sub> Bend 90° Overall length 70 mm



Low profile LPB494-10M Left pair **HFB493** 

### **HFB590**

Hole 10<sub>mm</sub> **Thickness** 13 mm Width 18<sub>mm</sub> Overall length 79.4 mm



Right pair **HFB591** 

### **HFB591**

Hole 10 mm **Thickness** 13 mm Width 18<sub>mm</sub> Overall length 79.4 mm

Left pair HFB590



### **HFB592**

Hole 10 mm **Thickness** 13 mm Width 18<sub>mm</sub> Overall length





### **HFB593**

Hole 10 mm **Thickness** 13 mm Width 18mm Overall length 100.6 mm

Left pair HFB592



### **HFB594**

Hole 10<sub>mm</sub> **Thickness** 13 mm Width 18<sub>mm</sub> Overall length 95.7 mm



Right pair HFB595

### **HFB595**

Hole 10 mm **Thickness** 13 mm Width 18mm Overall length 95.7 mm

Left pair HFB594



### **HFB598**

Right pair

Hole 10<sub>mm</sub> Thickness 1/2" Width 18<sub>mm</sub> Overall length 82.5 mm

**HFB599** 



### **HFB599**

Hole 10 mm Thickness 1/2" Width 18mm Overall length 82.5 mm

Left pair **HFB598** 



CONTINUED

# 10 MM HOLE 19 MM WIDTH

### HFB<sub>16</sub>

Hole 10 mm
Thickness 10.4 mm
Width 19 mm
Angle 20°
Overall length 54 mm



### HFB40

Hole 10 mm
Thickness 11.3 mm
Width 19 mm
Angle straight
Overall length 42 mm



### HFB45

Hole 10 mm
Thickness 11 mm
Width 19.6 mm
Angle 10°
Overall length 47 mm



### HFB49

Hole 10 mm
Thickness 11.3 mm
Width 19 mm
Angle straight
Overall length 44 mm



### **HFB113**

Hole 10 mm
Thickness 11.8 mm
Width 19 mm
Overall length 130 mm

HFB114



### **HFB114**

Hole10 mmThickness11.8 mmWidth19 mmOverall length130 mm

HFB113



### **HFB180**

Left pair

Hole 10 mm
Thickness 11 mm
Width 19.5 mm
Bend 30°
Overall length 65 mm



### **HFB187**

Right pair

Hole 10 mm
Thickness 8 mm
Width 19 mm
Bend straight
Overall length 61 mm



### **HFB251**

Hole 10 mm
Thickness 12.6 mm
Width 19.6 mm
Bend 90°
Overall length 80 mm



### **HFB256**

Hole 10 mm
Thickness 11.8 mm
Width 19.5 mm
Bend 75°
Overall length 110 mm



**CONTINUED** 

### **HFB310**

Hole 10 mm
Thickness 11.4 mm
Width 19 mm
Bend 10°
Overall length 82 mm



# 10 MM HOLE 20 MM WIDTH

### **HFB12**

Hole 10mm
Thickness 11.5mm
Width 20mm
Angle 10°
Overall length 46mm



Low profile LPB12-10M

### HFB14

Hole 10 mm
Thickness 13 mm
Width 20 mm
Bend 20°
Overall length 55 mm

Low profile LPB14



**HFB41** 

Hole 11 mm
Thickness 14 mm
Width 20 mm
Angle 20°
Overall length 50 mm



### HFB91

Hole 10 mm
Thickness 11.4 mm
Width 20 mm
Angle straight
Overall length 42 mm



**HFB107** 

Hole 10 mm
Thickness 12 mm
Width 20 mm
Bend 75°
Overall length 86 mm



Left pair HFB108

### **HFB108**

 $\begin{array}{lll} \mbox{Hole} & 10\,\mbox{mm} \\ \mbox{Thickness} & 12\,\mbox{mm} \\ \mbox{Width} & 20\,\mbox{mm} \\ \mbox{Bend} & 75^{\circ} \\ \mbox{Overall length} & 86\,\mbox{mm} \end{array}$ 



Right pair HFB107

### **HFB119**

Hole 10 mm
Thickness 11.9 mm
Width 20 mm
Bend 90°
Overall length 60 mm



Left pair HFB120

### **HFB120**

 Hole
 10 mm

 Thickness
 11.9 mm

 Width
 20 mm

 Bend
 90°

 Overall length
 60 mm

Right pair HFB119



**CONTINUED** 

### **HFB161**

Hole 10 mm **Thickness** 14.5 mm Width 20 mm Bend 30° Overall length 121 mm



### **HFB259**

Hole 10mm **Thickness** 11.6mm Width 20.5 mm 90° Bend Overall length 110 mm



Right pair HFB260

### **HFB260**

Hole 10 mm **Thickness** 11.6 mm Width 20.5 mm 90° Bend Overall length 110 mm

Left pair **HFB259** 



### **HFB267**

Hole 10mm **Thickness** 11.7 mm Width 20.5 mm Bend 15° Overall length 90 mm



### **HFB450**

Hole 10 mm **Thickness** 12.4 mm Width 20 mm 90° Bend Overall length 80 mm





Bend Overall length right

Hole

Width

Thickness

Right pair **HFB450** 

10 mm

20 mm

80 mm

90°

12.4 mm



# 10 MM HOLE 22 MM WIDTH

### HFB51

Hole 10 mm **Thickness** 14.7 mm Width 22.2 mm 55° Bend 75 mm Overall length



**CONTINUED** 

### **HFB121**

Hole10 mmThickness14.7 mmWidth22.2 mmOverall length127 mm



Left pair HFB122

### **HFB122**

Hole10 mmThickness14.7 mmWidth22.2 mmOverall length127 mm

HFB121



### **HFB173**

Hole 10 mm
Thickness 12 mm
Width 22.2 mm
Overall length 118 mm



### **HFB239**

Right pair

Hole 10 mm
Thickness 11.6 mm
Width 22.2 mm
Overall length 200 mm



### **HFB240**

Hole 10 mm
Thickness 11.9 mm
Width 22.2 mm
Overall length 200 mm



### **HFB242**

Hole 10 mm
Thickness 11.5 mm
Width 22.2 mm
Overall length 220 mm



### **HFB245**

Hole10 mmThickness11.7 mmWidth22.2 mmOverall length100 mm



### **HFB246**

Hole10 mmThickness11.7 mmWidth22.2 mmOverall length100 mm

HFB245



### **HFB247**

Left pair

Hole10 mmThickness11.8 mmWidth22.2 mmBend30°Overall length51.9 mm

HFB248



### **HFB248**

Right pair

Hole10 mmThickness11.8 mmWidth22.2 mmBend30°Overall length51.9 mm



Left pair HFB247

### **HFB249**

Right pair

Right pair

Hole 10mm
Thickness 11.8mm
Width 22.2mm
Overall length 68.3mm



### **HFB250**

Left pair

Hole 10 mm
Thickness 11.8 mm
Width 22.2 mm
Overall length 68.3 mm



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CONTINUED

#### **HFB284**

Hole 10 mm
Thickness 11.5 mm
Width 22.4 mm
Overall length 107.4 mm





#### **HFB285**

Hole10 mmThickness11.5 mmWidth22.4 mmOverall length107.4 mm

Left pair HFB284



#### **HFB286**

Hole 10 mm
Thickness 11.5 mm
Width 22.4 mm
Bend straight
Overall length 62 mm



#### **HFB328**

Hole 10 mm
Thickness 7/16"
Width 22 mm
Overall length 75 mm

Left pair HFB329



#### **HFB329**

Hole10 mmThickness7/16"Width22 mmOverall length75 mm

Right pair HFB328



#### **HFB410**

Hole 10 mm
Thickness 12 mm
Width 22 mm
Bend 55°
Overall length 86.6 mm

Right pair HFB411



#### **HFB411**

Hole 10 mm
Thickness 12 mm
Width 22 mm
Bend 55°
Overall length 86.6 mm

Left pair HFB410



## 10 MM HOLE 25 MM WIDTH

#### **HFB597**

Hole 10 mm
Thickness 11.8 mm
Width 25.4 mm
Angle straight
Overall length 46.5 mm



**CONTINUED** 

## **10 MM HOLE** 26 MM WIDTH

#### HFB56

Hole 10 mm
Thickness 11.7 mm
Width 26 mm
Angle straight
Overall length 45 mm



#### **HFB403**

Hole 10 mm
Thickness 11.5 mm
Width 26 mm
Angle straight
Overall length 52 mm



## **10 MM HOLE** 28 MM WIDTH

#### HFB11

Hole 10 mm
Thickness 16.5 mm
Width 28 mm
Bend 40°
Overall length 92 mm



#### HFB86

Hole10 mmThickness14.2 mmWidth28.6 mmOverall length175 mm





left

#### HFB87

Hole10 mmThickness14.2 mmWidth28.6 mmOverall length175 mm

Left pair HFB86



## **11 MM HOLE** 19 MM WIDTH

#### HFB54

Hole 11 mm
Thickness 11 mm
Width 19 mm
Angle straight
Overall length 43 mm



#### HFB59

Hole 11 mm
Thickness 14.8 mm
Width 19.5 mm
Angle straight
Overall length 52 mm



#### HFB66

Hole 11 mm
Thickness 14.7 mm
Width 19 mm
Angle straight
Overall length 41 mm



#### HFB72

Hole 11 mm
Thickness 11 mm
Width 19 mm
Angle 10°
Overall length 42 mm



CONTINUED

## 11 MM HOLE 20 MM WIDTH

#### HFB60

Hole 11 mm
Thickness 11.5 mm
Width 20 mm
Angle 10°
Overall length 46 mm



## 11 MM HOLE 22 MM WIDTH

#### HFB61

Hole 11 mm
Thickness 14.6 mm
Width 22.2 mm
Bend 105°
Overall length 60 mm



#### HFB78

Hole 11 mm
Thickness 11 mm
Width 22.2 mm
Overall length 133 mm

Right pair HFB79



left

#### HFB79

Hole 11 mm
Thickness 11 mm
Width 22.2 mm
Overall length 133 mm

Left pair HFB78



right

## 11 MM HOLE 25 MM WIDTH

#### HFB48

Hole 11 mm
Thickness 12.5 mm
Width 25.5 mm
Angle 15°
Overall length 49 mm



#### HFB55

Hole 11 mm
Thickness 12.4 mm
Width 25 mm
Angle straight
Overall length 47 mm



**CONTINUED** 

## 12 MM HOLE 19 MM WIDTH

#### **HFB101**

Hole12 mmThickness8 mmWidth19 mmBendstraightOverall length51 mm



#### **HFB145**

Hole 12mm
Thickness 8mm
Width 19mm
Bend straight
Overall length 61mm



#### **HFB379**

Hole12 mmThickness8.5 mmWidth19 mmBend30°Overall length60 mm



## 12 MM HOLE 22 MM WIDTH

#### **HFB312**

Hole 12mm
Thickness 8mm
Width 22mm
Bend 30°
Overall length 57mm



## **3/8" HOLE** 19 MM WIDTH

#### HFB39

 Hole
 3/8"

 Thickness
 1/2"

 Width
 19 mm

 Bend
 15°

 Overall length
 100 mm



#### HFB77

Hole 3/8"
Thickness 1/2"
Width 19.7 mm
Overall length 143 mm



#### HFB90

 Hole
 3/8"

 Thickness
 7/16"

 Width
 19 mm

 Bend
 35°

 Overall length
 75 mm



CONTINUED

## **3/8" HOLE** 20 MM WIDTH

#### **HFB243**

Hole 3/8"
Thickness 14.9 mm
Width 20.5 mm
Angle straight
Overall length 42 mm



#### **HFB283**

Hole 3/8"
Thickness 14.7 mm
Width 20 mm
Angle straight
Overall length 42 mm



## **3/8" HOLE** 22 MM WIDTH

#### HFB58

 Hole
 3/8"

 Thickness
 7/16"

 Width
 22.2 mm

 Bend
 65°

 Overall length
 80 mm



#### HFB68

 Hole
 3/8"

 Thickness
 1/2"

 Width
 22.4 mm

 Bend
 7°

 Overall length
 110 mm



HFB69

 Hole
 3/8"

 Thickness
 1/2"

 Width
 22.4 mm

 Bend
 7°

 Overall length
 110 mm

HFB68



Right pair HFB69

#### **HFB135**

 Hole
 3/8"

 Thickness
 7/16"

 Width
 22.2 mm

 Bend
 10°

 Overall length
 114 mm



Left pair HFB136

#### **HFB136**

Left pair

 Hole
 3/8"

 Thickness
 7/16"

 Width
 22.2mm

 Bend
 10°

 Overall length
 114mm



Right pair HFB135

#### **HFB140**

Right pair

 Hole
 3/8"

 Thickness
 1/2"

 Width
 22.2 mm

 Bend
 75°

 Overall length
 111 mm

HFB141



**HFB141** 

Hole 3/8"
Thickness 1/2"
Width 22.2mm
Bend 75°
Overall length 111 mm





**CONTINUED** 

#### **HFB230**

3/8" Hole 7/16" **Thickness** Width 22 mm Angle 10° Overall length 45 mm



Left pair HFB231

#### **HFB231**

3/8" Hole 7/16" **Thickness** Width 22 mm 10° Angle Overall length 45 mm



Right pair HFB230

#### **HFB277**

Hole 3/8" 1/2" Thickness Width 22.2 mm Bend 90° Overall length 73 mm



Left pair HFB278

#### **HFB278**

Hole 3/8" 1/2" **Thickness** Width 22.2 mm Bend 90° Overall length 73 mm



Right pair HFB277

#### **HFB315**

Hole 3/8" Thickness 1/2" Width 22.2 mm Overall length 195 mm

HFB316



#### **HFB316**

Hole 3/8" Thickness 1/2" Width 22.2 mm Overall length 195 mm

Left pair HFB315



#### **HFB386**

Right pair

Hole 3/8" Thickness 1/2" Width 22.2 mm Overall length 200 mm



Right pair **HFB387** 

#### **HFB387**

Hole 3/8" Thickness 1/2" Width 22.2 mm Overall length 200 mm



Left pair HFB386

#### **HFB418**

3/8" Hole **Thickness** 7/16" Width 22.2 mm Bend 60° Overall length 80 mm



**HFB419** Right pair

#### **HFB419**

Left pair

3/8" Hole **Thickness** 7/16" Width Bend 60° Overall length 80 mm



**HFB418** 

CONTINUED

## **3/8" HOLE 23 MM WIDTH**

#### **HFB193**

 Hole
 3/8"

 Thickness
 1/2"

 Width
 23 mm

 Bend
 10°

 Overall length
 110 mm



#### **HFB209**

Hole 3/8"
Thickness 1/2"
Width 23 mm
Overall length 180 mm

Right pair HFB210



#### **HFB210**

 Hole
 3/8"

 Thickness
 1/2"

 Width
 23 mm

 Overall length
 180 mm

Left pair HFB209



#### **HFB323**

 Hole
 3/8"

 Thickness
 1/2"

 Width
 23.1 mm

 Bend
 90°

 Overall length
 63 mm

Right pair HFB324



### **HFB324**

 Hole
 3/8"

 Thickness
 1/2"

 Width
 23.1 mm

 Bend
 90°

 Overall length
 63 mm

Left pair HFB323



#### **HFB430**

Hole 3/8"
Thickness 12.5 mm
Width 23.3 mm
Overall length 143.8 mm

Left pair HFB431



#### **HFB431**

Hole 3/8"
Thickness 12.5 mm
Width 23.3 mm
Overall length 143.8 mm

Right pair HFB430



## **3/8" HOLE** 24 MM WIDTH

#### **HFB322**

 Hole
 3/8"

 Thickness
 1/2"

 Width
 24.4 mm

 Overall length
 105 mm



**CONTINUED** 

## **3/8" HOLE** 25 MM WIDTH

#### **HFB131**

Hole 3/8" **Thickness** 1/4" Width 25 mm Overall length 148 mm

Left pair HFB132



#### **HFB132**

Hole 3/8" **Thickness** 1/4" Width 25 mm Overall length 148 mm

Right pair HFB131



#### **HFB148**

Hole 3/8" **Thickness** 1/2" Width 85° Bend



25.4 mm Overall length 120.7 mm

#### **HFB155**

Hole 3/8" Thickness 1/2" Width 25 mm Bend 70° Overall length 190 mm

Left pair HFB156



#### **HFB156**

Hole 3/8" **Thickness** 1/2" Width 25 mm Bend 70° Overall length 190 mm

Right pair HFB155



#### **HFB203**

3/8" Hole **Thickness** 11 mm 25 mm Width 35° Bend 75 mm Overall length



left

right

#### **HFB221**

Hole 3/8" 1/2" **Thickness** Width 25.5 mm Bend 90° Overall length 180 mm

Right pair HFB222



#### **HFB222**

Hole 3/8" 1/2" **Thickness** Width 25.5 mm Bend 90° Overall length 180 mm

Left pair HFB221



CONTINUED

#### **HFB270**

 Hole
 3/8"

 Thickness
 1/2"

 Width
 25.4 mm

 Overall length
 60.3 mm



#### **HFB380**

 $\begin{array}{lll} \mbox{Hole} & 3/8 \mbox{"} \\ \mbox{Thickness} & 7/16 \mbox{"} \\ \mbox{Width} & 25.4 \mbox{mm} \\ \mbox{Bend} & 60 \mbox{°} \\ \mbox{Overall length} & 165 \mbox{mm} \end{array}$ 



Right pair HFB381

#### **HFB381**

 Hole
 3/8"

 Thickness
 7/16"

 Width
 25.4mm

 Bend
 60°

 Overall length
 165 mm

Left pair HFB380

#### **HFB384**

Hole 3/8"
Thickness 12.5 mm
Width 25.4 mm
Angle straight
Overall length 45 mm



right

#### **HFB623**

Hole 3/8"
Thickness 1/2"
Width 25.4 mm
Overall length 162 mm

Left pair HFB624

#### **HFB624**

 $\begin{tabular}{ll} Hole & 3/8" \\ Thickness & 1/2" \\ Width & 25.4\,mm \\ Overall length & 162\,mm \\ \end{tabular}$ 

Right pair HFB623



right

## **3/8" HOLE** 26 MM WIDTH

#### **HFB306**

Hole 3/8"
Thickness 15.3 mm
Width 26 mm
Overall length 134 mm





#### **HFB307**

Hole 3/8"
Thickness 15.3 mm
Width 26 mm
Overall length 134 mm

Right pair HFB306



CONTINUED

## **3/8" HOLE 28 MM WIDTH**

#### HFB67

Hole 3/8"
Thickness 1/2"
Width 28 mm
Angle straight
Overall length 48 mm



## **7/16" HOLE** 22 MM WIDTH

#### **HFB276**

Hole 7/16"
Thickness 14.7mm
Width 22.2mm
Bend 90°
Overall length 65 mm



## **7/16" HOLE** 32 MM WIDTH

#### **HFB165**

 Hole
 7/16"

 Thickness
 14.7 mm

 Width
 32.5 mm

 Angle
 20°

 Overall length
 65 mm





#### **HFB166**

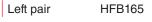
 Hole
 7/16"

 Thickness
 14.7 mm

 Width
 32.5 mm

 Angle
 20°

 Overall length
 65 mm





right

### **8MM HOLE** 14MM WIDTH

#### HFB27

Hole 8 mm
Thickness 6 mm
Width 14 mm
Bend straight
Overall length 53 mm



Low profile LPB27-8M

## 8 MM HOLE 21 MM WIDTH

#### **HFB111**

Hole 8 mm
Thickness 13.5 mm
Width 21 mm
Angle straight
Overall length 40 mm



## **10 MM HOLE** 17 MM WIDTH

#### HFB01

Hole 10 mm
Thickness 8 mm
Width 17 mm
Bend straight
Overall length 54 mm



bendable to 45°

Low profile LPB01-10M LP chrome LPB01-10MC LP stainless LPB01-10MSS

#### HFB03

Hole 10 mm
Thickness 8 mm
Width 17 mm
Bend straight
Overall length 66 mm



bendable to 45°

#### HFB05

Hole 10 mm
Thickness 10 mm
Width 17 mm
Bend straight
Overall length 65 mm



bendable to 45°

#### HFB29

Hole 10 mm
Thickness 10 mm
Width 17 mm
Bend 40°
Overall length 52 mm



#### HFB32

Hole 10 mm
Thickness 8 mm
Width 17 mm
Bend 90°
Overall length 39 mm



Low profile LPB01-90-10M

#### HFB33

Hole 10 mm
Thickness 8 mm
Width 17 mm
Bend 75°
Overall length 60 mm



#### **CONTINUED**

#### HFB34

Hole 10 mm **Thickness** 8 mm Width 17 mm Bend straight Overall length 62.5 mm



bendable to 90°

Stainless HFB34SS

#### HFB35

Hole 10 mm Thickness 10 mm Width 17 mm Bend straight Overall length 80 mm



bendable to 90°

#### HFB50

Hole 10 mm Thickness 10<sub>mm</sub> Width 17 mm Bend straight Overall length 50 mm

HFB73



bendable to 45°

#### HFB73

Hole 10 mm Thickness 10 mm Width 17 mm Bend straight Overall length 50 mm





bendable to 45°

#### HFB75

Right pair

Hole 10<sub>mm</sub> **Thickness** 10<sub>mm</sub> Width 17 mm 90° Bend 61 mm Overall length



#### **HFB288**

Hole 10 mm Thickness 8 mm Width 17 mm Bend straight Overall length 61 mm



bendable to 45°

#### **HFB342**

Hole 10<sub>mm</sub> 8mm Thickness Width 17 mm 15° Bend Overall length 60 mm



HFB343 Left pair

#### **HFB343**

Hole 10 mm **Thickness** 8mm Width 17 mm 15° Bend Overall length 60 mm

Right pair HFB342



left

#### **HFB344**

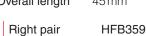
Hole 10 mm **Thickness** 10 mm Width 17 mm Bend straight Overall length 58 mm



CONTINUED

#### **HFB358**

Hole10 mmThickness8 mmWidth17 mmBend75°Overall length45 mm





#### **HFB359**

Hole10 mmThickness8 mmWidth17 mmBend75°Overall length45 mm

Left pair HFB358



#### **HFB366**

Hole 10 mm
Thickness 8 mm
Width 17 mm
Bend 20°
Overall length 47.8 mm



#### **HFB530**

Hole10 mmThickness10 mmWidth17 mmBend15°Overall length82 mm



#### **HFB544**

Hole 10 mm
Thickness 10 mm
Width 17 mm
Overall length 89 mm



#### **HFB545**

Hole 10 mm
Thickness 10 mm
Width 17 mm
Overall length 108 mm

Right pair HFB546



left

#### **HFB546**

Hole 10 mm
Thickness 10 mm
Width 17 mm
Overall length 108 mm

Left pair HFB545



right

**CONTINUED** 

#### **HFB547**

Hole 10 mm
Thickness 10 mm
Width 17 mm
Overall length 102 mm

Right pair HFB548



left

#### **HFB548**

Hole10 mmThickness10 mmWidth17 mmOverall length102 mm

Left pair HFB547



#### **HFB551**

Hole 10 mm
Thickness 10 mm
Width 17 mm
Bend 45°
Overall length 82 mm

Right pair HFB552



Hole 10 mm
Thickness 10 mm
Width 17 mm
Bend 45°
Overall length 82 mm

Left pair HFB551



#### **HFB553**

Hole 10 mm
Thickness 10 mm
Width 17 mm
Bend 90°
Overall length 47 mm

Right pair HFB554

#### **HFB554**

Hole 10 mm
Thickness 10 mm
Width 17 mm
Bend 90°
Overall length 47 mm

Left pair HFB553



#### **HFB555**

Hole 10 mm
Thickness 10 mm
Width 17 mm
Bend 85°
Overall length 59 mm

Right pair HFB556

#### **HFB556**

 $\begin{array}{lll} \mbox{Hole} & 10\,\mbox{mm} \\ \mbox{Thickness} & 10\,\mbox{mm} \\ \mbox{Width} & 17\,\mbox{mm} \\ \mbox{Bend} & 85^{\circ} \\ \mbox{Overall length} & 59\,\mbox{mm} \end{array}$ 

Left pair HFB555



#### **HFB557**

Hole 10 mm
Thickness 10 mm
Width 17 mm
Bend straight
Overall length 75 mm



left

**CONTINUED** 

#### **HFB558**

Hole 10mm **Thickness** 10 mm Width 17 mm 90° Bend Overall length 50 mm

HFB559



**HFB559** 

Hole 10<sub>mm</sub> Thickness 10 mm Width 17 mm Bend 90° Overall length 50 mm



HFB558 Left pair

#### **HFB562**

Right pair

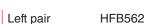
Hole 10mm **Thickness** 10mm Width 17 mm Bend 45° Overall length 66.8 mm



Hole

#### **HFB563**

10 mm **Thickness** 10 mm Width 17 mm Bend 45° Overall length 66.8 mm



# right

Right pair HFB563

#### **HFB567**

Hole 10 mm **Thickness** 10mm Width 17 mm Bend 20° Overall length 66.6 mm

HFB568

HFB570



**HFB568** 

Hole 10 mm **Thickness** 10 mm Width 17 mm Bend 20° Overall length 66.6 mm

Left pair **HFB567** 



**HFB569** 

Right pair

Right pair

Hole 10mm 10mm **Thickness** Width 17 mm Overall length 48.8 mm



**HFB570** 

Hole 10 mm **Thickness** 10 mm Width 17 mm Overall length 48.8 mm

Left pair HFB569



**CONTINUED** 

## 10 MM HOLE 18 MM WIDTH

#### HFB02

Hole 10 mm
Thickness 10 mm
Width 18 mm
Bend straight
Overall length 64 mm



bendable to 45°

#### HFB09

Hole 10 mm
Thickness 10 mm
Width 18 mm
Bend straight
Overall length 55 mm



Stainless HFB09SS
Low profile LPB09-10M
LP chrome LPB09-10MC
LP stainless LPB09-10MSS

#### HFB15

Hole10 mmThickness10 mmWidth18 mmBendstraightOverall length52 mm



bendable to 45°

#### HFB28

Hole10 mmThickness10 mmWidth18 mmBendstraightOverall length54 mm



#### HFB37

Hole 10 mm
Thickness 10 mm
Width 18 mm
Bend straight
Overall length 64 mm



bendable to 90°

Stainless HFB37SS

#### HFB92

Right pair

Hole 10 mm
Thickness 10 mm
Width 18 mm
Overall length 90 mm

HFB93



HFB93

Hole10 mmThickness10 mmWidth18 mmOverall length90 mm

Left pair HFB92



**CONTINUED** 

#### **HFB194**

Hole 10 mm
Thickness 10 mm
Width 18 mm
Bend straight
Overall length 92 mm



Low profile LPB455-10M

#### **HFB340**

Hole 10 mm
Thickness 10 mm
Width 18 mm
Bend 45°
Overall length 100 mm



#### **HFB345**

Hole 10 mm
Thickness 10 mm
Width 18 mm
Bend 50°
Overall length 45 mm



#### **HFB348**

Hole10 mmThickness15 mmWidth18 mmBend30°Overall length50 mm



Right pair HFB349

#### **HFB349**

Hole 10 mm
Thickness 15 mm
Width 18 mm
Bend 30°
Overall length 50 mm





#### **HFB351**

Hole 10 mm
Thickness 10 mm
Width 18 mm
Bend straight
Overall length 55 mm



Right pair HFB352

#### **HFB352**

Hole10 mmThickness10 mmWidth18 mmBendstraightOverall length55 mm

Left pair HFB351



bendable to  $45^\circ$ 

#### **HFB353**

Hole 10 mm
Thickness 8 mm
Width 18 mm
Bend 75°
Overall length 60 mm



Left pair HFB354

#### **HFB354**

Hole 10 mm
Thickness 8 mm
Width 18 mm
Bend 75°
Overall length 60 mm

Right pair HFB353



CONTINUED

#### **HFB357**

Hole 10 mm
Thickness 8 mm
Width 18 mm
Bend 40°
Overall length 60 mm



#### **HFB362**

Hole 10 mm
Thickness 8 mm
Width 18 mm
Bend 80°
Overall length 45 mm





Hole 10 mm
Thickness 8 mm
Width 18 mm
Bend 80°
Overall length 45 mm

Left pair HFB362



#### **HFB364**

Hole 10 mm
Thickness 8 mm
Width 18 mm
Bend 75°
Overall length 50 mm



left

#### **HFB373**

Hole10 mmThickness10 mmWidth18 mmBend55°Overall length65 mm



#### **HFB375**

Hole 10 mm
Thickness 10 mm
Width 18 mm
Bend straight
Overall length 65 mm



#### **HFB456**

Hole 10 mm
Thickness 10 mm
Width 18 mm
Bend 90°
Overall length 48 mm

Left pair HFB457



#### **HFB457**

Hole10 mmThickness10 mmWidth18 mmBend90°Overall length48 mm

Right pair HFB456



#### **CONTINUED**

#### **HFB519**

Hole 10 mm
Thickness 10 mm
Width 18 mm
Bend 15°
Overall length 60 mm



#### **HFB523**

Hole 10 mm
Thickness 10 mm
Width 18 mm
Bend straight
Overall length 60 mm



bendable to 45°

#### **HFB527**

Hole 10 mm
Thickness 10 mm
Width 18 mm
Bend straight
Overall length 60 mm



bendable to 45°

#### **HFB528**

Hole 10 mm
Thickness 10 mm
Width 18 mm
Bend straight
Overall length 55 mm



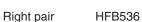
#### **HFB534**

Hole 10 mm
Thickness 10 mm
Width 18 mm
Bend 75°
Overall length 60 mm



#### **HFB535**

Hole 10 mm
Thickness 10 mm
Width 18 mm
Bend 30°
Overall length 60 mm





#### **HFB536**

Hole 10 mm
Thickness 10 mm
Width 18 mm
Bend 30°
Overall length 60 mm



Left pair HFB535

#### **HFB537**

Hole 10 mm
Thickness 10 mm
Width 18 mm
Bend 45°
Overall length 60 mm





#### **HFB538**

Hole 10 mm
Thickness 10 mm
Width 18 mm
Bend 45°
Overall length 60 mm

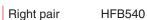


Left pair HFB537

**CONTINUED** 

#### **HFB539**

Hole 10 mm
Thickness 10 mm
Width 18 mm
Bend 40°
Overall length 40 mm





#### **HFB540**

Hole 10 mm
Thickness 10 mm
Width 18 mm
Bend 40°
Overall length 40 mm

Left pair HFB539



#### **HFB541**

Hole 10 mm
Thickness 10 mm
Width 18 mm
Bend 25°
Overall length 64 mm

Right pair HFB542

#### **HFB542**

Hole 10 mm
Thickness 10 mm
Width 18 mm
Bend 25°
Overall length 64 mm

Left pair HFB541



#### **HFB573**

Hole 10 mm
Thickness 10 mm
Width 18 mm
Bend 30°
Overall length 49.1 mm

Right pair HFB574



left

#### **HFB574**

Hole 10 mm
Thickness 10 mm
Width 18 mm
Bend 30°
Overall length 49.1 mm

Left pair HFB573



## **10 MM HOLE** 19 MM WIDTH

#### HFB<sub>10</sub>

Hole 10 mm
Thickness 9.5 mm
Width 19 mm
Bend 70°
Overall length 68.3 mm



1/8-27 NPT port, for Harley

## 10 MM HOLE 20 MM WIDTH

#### **HFB533**

Hole 10 mm
Thickness 14 mm
Width 20 mm
Angle straight
Overall length 50 mm



**CONTINUED** 

## **11 MM HOLE** 19 MM WIDTH

#### **HFB150**

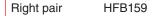
Hole 11 mm
Thickness 8.5 mm
Width 19 mm
Overall length 192 mm



## 11 MM HOLE 25 MM WIDTH

#### **HFB158**

Hole 11 mm
Thickness 14.9 mm
Width 25.4 mm
Bend 35°
Overall length 57 mm





#### **HFB159**

Hole 11 mm
Thickness 14.9 mm
Width 25.4 mm
Bend 35°
Overall length 57 mm

Left pair HFB158



## **12 MM HOLE** 19 MM WIDTH

#### HFB47

Hole 12 mm
Thickness 10 mm
Width 19 mm
Bend straight
Overall length 55 mm



bendable to 45°

Stainless HFB47SS Low profile LPB47-12M

## 15 MM HOLE 25 MM WIDTH

#### HFB19

Hole 15 mm
Thickness 13.5 mm
Width 25 mm
Angle straight
Overall length 45 mm



CONTINUED

## **3/8" HOLE** 21 MM WIDTH

#### **HFB105**

 Hole
 3/8"

 Thickness
 1/2"

 Width
 21 mm

 Overall length
 113 mm

Right pair HFB106



bendable to 90°

#### **HFB106**

 Hole
 3/8"

 Thickness
 1/2"

 Width
 21 mm

 Overall length
 113 mm

Left pair HFB105



right

## **7/16" HOLE** 19 MM WIDTH

#### **HFB448**

Hole 7/16"
Thickness 10 mm
Width 19 mm
Bend straight
Overall length 60 mm

Low profile LPB448-7 LP stainless LPB448-7SS

### **HFB679**

Hole 7/16"
Thickness 10 mm
Width 19 mm
Bend 45°
Overall length 64 mm



#### **HFB681**

 Hole
 7/16"

 Thickness
 10 mm

 Width
 19 mm

 Bend
 90°

 Overall length
 50.9 mm

Low profile LPB448-90-7

#### HFB682

 Hole
 7/16"

 Thickness
 10 mm

 Width
 19 mm

 Bend
 35°

 Overall length
 46.1 mm

Low profile LPB652



## **BOLT MOUNT** 3/8-24 UNF

Inverted seat

#### HFIF23

Thread 3/8-24 UNF ports (2)

Seat type inverted Mount hole 11.9 mm Overall length 65 mm



#### HFIF25

Thread 3/8-24 UNF ports (2) Seat type inverted

Mount hole 10 mm Overall length 49 mm



#### HFIF34

Thread Seat type

Mount hole 8-10 mm Overall length 49 mm



#### HFIF37

Thread 3/8-24 UNF ports (2)

Seat type inverted Mount hole 12<sub>mm</sub> Overall length 53 mm



#### HFIF43

Thread 3/8-24 UNF ports (2)

Seat type inverted Mount hole 7.3 mm Overall length 22 mm



#### HFIF47

Thread 3/8-24 UNF ports (2)

Seat type inverted Mount hole 12<sub>mm</sub> 50 mm Overall length



#### HFIF53

Thread 3/8-24 UNF ports (2)

Seat type inverted Mount hole 11.8 mm Overall length 53 mm



#### HFIF55

Thread 3/8-24 UNF ports (2)

Seat type inverted Mount hole 15 mm Overall length 58 mm



#### HFIF56

Thread 3/8-24 UNF ports (2)

Seat type inverted Mount hole 11.8 mm Overall length 55 mm



#### HFIF66

Thread 3/8-24 UNF ports (2)

Seat type inverted Mount hole 11.9 mm Bend 30°



#### **IMPERIAL FEMALE** CONTINUED

#### Inverted seat

#### HFIF80

Thread 3/8-24 UNF ports (2) Seat type inverted Mount hole 11.8 mm Overall length 52 mm



#### HFIF88

Thread 3/8-24 UNF por Seat type inverted 11.6mm Mount hole Overall length 51 mm



#### HFIF94

Thread Seat type inverted Mount hole 8-10 mm Overall length 58 mm



#### **HFIF110**

Thread Seat type inverted Mount hole 12<sub>mm</sub> Overall length 54 mm



#### **HFIF129**

Thread Seat type inverted Mount hole 8.75 mm Bend straight Overall length 75 mm



#### **HFIF180**

Thread Seat type inverted 11.9 mm Mount hole Overall length 56 mm



## **BOLT MOUNT** 3/8-24 UNF + 7/16-24 UNS

#### Inverted seat

#### HFIF28

Threads 3/8-24 UNF port

7/16-24 UNS port

Seat type inverted 11.8 mm Mount hole Overall length 52 mm



#### HFIF31

Threads 3/8-24 UNF port

inverted

Seat type 11.9 mm Mount hole Overall length 52 mm



#### HFIF39

Thread 3/8-24 UNF port

7/16-24 UNS port

Seat type inverted Mount hole 11.8 mm Overall length 52 mm



#### HFIF48

Threads 3/8-24 UNF port

7/16-24 UNS port

inverted Seat type Mount hole 11.5 mm Overall length 53 mm



CONTINUED

## **BOLT MOUNT** 7/16-24 UNS



#### HFIF46

Thread 7/16-24 UNS port
Seat type inverted
Mount hole 10 mm

Overall length 60 mm

## HFIF54

Thread 7/16-24 UNS port

Seat type inverted
Mount hole 11.9mm
Angle 90°
Overall length 51 mm



#### HFIF57

Thread 7/16-24 UNS ports (2)

Seat type inverted Mount hole 8-10 mm Overall length 54 mm



#### HFIF111

Thread 7/16-24 UNS ports (2)

Seat type inverted Mount hole 12 mm Overall length 51 mm



#### **HFIF157**

Thread 7/16-24 UNS ports (2)

Seat type inverted Mount hole 10 mm Overall length 53 mm



## **BOLT MOUNT** 1/2-20 UNF



#### HFIF77

Thread 1/2-20 UNF port
Seat type inverted
Mount hole 6 mm
Overall length 42 mm



CONTINUED

## **BRACKET MOUNT** 3/8-24 UNF

Inverted seat

#### HFIF15

Thread 3/8-24 UNF port Seat type inverted Overall length 46 mm



#### HFIF22

Thread Seat type Overall length

inverted 41 mm



#### HFIF60A

Thread 3/8-24 UNF ports (2) inverted Seat type Overall length 42 mm



#### HFIF70

Thread Seat type Overall length

3/8-24 UNF ports (2) inverted 48 mm



#### HFIF90

Thread 3/8-24 UNF ports (2) Seat type inverted Overall length 37 mm



#### HFIF99

Thread 3/8-24 UNF ports (2) Seat type inverted

Overall length 56 mm



#### **HFIF120**

Thread 3/8-24 UNF port Seat type inverted 5/8" Hex 42 mm Overall length



Use with wire brackets (such as BQB415).

#### **HFIF146**

Thread 3/8-24 UNF port Seat type inverted 20° Bend Overall length 140 mm



#### **HFIF147**

Thread 3/8-24 UNF port Seat type inverted 20° Bend Overall length 20 mm



#### **HFIF148**

Thread Seat type Overall length

3/8-24 UNF port inverted 52.5 mm

**CONTINUED** 

#### Inverted seat

#### **HFIF149**

Thread 3/8-24 UNF port Seat type inverted

Overall length 52.5 mm



#### **HFIF152**

Thread 3/8-24 UNF ports (2)

Seat type inverted
Overall length 47 mm



#### **HFIF153**

Thread 3/8-24 UNF ports (2) Seat type inverted

Seat type inverted Overall length 57 mm



#### **HFIF304**

Thread 3/8-24 UNF ports (2)

Seat type inverted Overall length 51 mm



## **BRACKET MOUNT** 7/16-24 UNS

#### Inverted seat

#### HFIF52

Thread 7/16-24 UNS port Seat type inverted

Overall length 46 mm



#### **HFIF109**

Thread 7/16-24 UNS ports (2)

Seat type inverted
Overall length 46 mm



#### **HFIF138**

Thread 7/16-24 UNS ports (2)

Seat type inverted Overall length 53 mm



CONTINUED

## **BULKHEAD MOUNT** 1/8-27 NPT

## **BULKHEAD MOUNT 3/8-20 BSF**

#### HFIFX20

Thread 1/8-27 NPT port

Mount thread 5/8-18 UNF

Hex 19 mm

Overall length 45 mm

#### HFIFX03

Thread 3/8-20 BSF port
Seat type inverted
Mount thread 5/8-18 UNF
Hex 19 mm
Overall length 45 mm



## **BULKHEAD MOUNT** 3/8-24 UNF



#### HFIFX05

Thread 3/8-24 UNF port
Seat type drill-point
Mount thread 5/8-18 UNF
Hex 19 mm
Overall length 45 mm

#### Inverted seat

#### HFIFX02

Thread 3/8-24 UNF port
Seat type inverted
Mount thread 5/8-18 UNF
Hex 19 mm
Overall length 45 mm



#### HFIFX11

Thread 3/8-24 UNF port
Seat type inverted
Mount thread 5/8-18 UNF
Hex 19 mm
Overall length 48 mm



#### HFIFX14

Thread 3/8-24 UNF port
Seat type inverted
Mount thread 3/4-16 UNF
Hex 7/8"
Overall length 45 mm



#### HFIFX15

Thread 3/8-24 UNF port
Seat type inverted
Mount thread 5/8-18 UNF
Flats 16 mm
Overall length 47 mm

CONTINUED

## **BULKHEAD MOUNT** 7/16-20 UNF



#### HFIFX04

Thread 7/16-20 UNF port Seat type inverted

Mount thread5/8-18 UNFHex19 mmOverall length45 mm



## **BULKHEAD MOUNT** 7/16-24 UNS



#### HFIFX01

Thread 7/16-24 UNS port
Seat type inverted
Mount thread 5/8-18 UNF
Hex 19 mm

Hex 19 mm Overall length 45 mm

Low profile LPIFX01\*
\*LP stem LPS-LI-SAE

#### HFIFX06

Thread 7/16-24 UNS port Seat type inverted

Mount thread 5/8-18 UNF Hex 16 mm

Overall length 46 mm



#### HFIFX07

Thread 7/16-24 UNS port

Seat type inverted
Mount thread 3/4-16 UNF

Hex 1"
Overall length 65 mm



#### HFIFX12

Thread 7/16-24 UNS port
Seat type inverted
Mount thread 5/8-18 UNF

ex 7/8"

Overall length 54 mm



#### HFIFX16

Overall length

Thread 7/16-24 UNS port Seat type inverted

45 mm

Mount thread 3/4-16 UNF Hex 7/8"



#### HFIFX19

Thread 7/16-24 UNS port
Seat type inverted
Mount thread 7/8-14 UNF

Hex 1"
Overall length 61 mm



#### **IMPERIAL FEMALE** CONTINUED

#### Inverted seat

#### HFIFX21

Thread 7/16-24 UNS ports (2) Seat type inverted Mount thread 7/8-18 UNS Hex Overall length 80 mm

Secure with BQ89 nut.

#### HFIFX22

Thread 7/16-24 UNS port Seat type inverted Mount thread 7/8-14 UNF Hex 1" Overall length 80 mm



#### HFIFX23

Thread 7/16-24 UNS port Seat type inverted

Mount thread 5/8-18 UNF Hex 5/8"

Overall length 46 mm

## **BULKHEAD MOUNT 1/2-20 UNF**



#### HFIFX09

Thread 1/2-20 UNF port Seat type inverted Mount thread 11/16-18 UNF

Hex 7/8" Overall length 46 mm



/// Bulkhead nuts are on page 148.

Not all clip-mount fittings come with an e-clip. The fitting will be pictured with a clip if the clip is included.

## **CLIP MOUNT** 3/8-24 UNF



#### HFIF21

Thread 3/8-24 UNF port Seat type drill-point Flats 16mm Overall length 37 mm



**CONTINUED** 

#### Inverted seat

#### HFIF01

Thread 3/8-24 UNF port
Seat type inverted
Hex 19 mm
Overall length 38 mm

Brass HFIF01B Stainless HFIF01SS

Low profile LPIF01, LPIF01-6\*
LP chrome LPIF01-6C\*
LP stainless LPIF01-6SS\*
\*LP stem LPS-SI-SAE
Alternative HFIF36

#### HFIF01B

Thread 3/8-24 UNF port
Seat type inverted
Hex 17 mm
Overall length 38 mm



#### HFIF05

Thread 3/8-24 UNF port
Seat type inverted
Hex 19 mm
Overall length 38 mm

Low profile LPIF05 \*

\*LP stem LPS-SI-SAE

Alternative HFIF45

#### HFIF07

Thread 3/8-24 UNF port
Seat type inverted
Hex 16 mm
Overall length 41 mm



#### HFIF08

Thread 3/8-24 UNF port
Seat type inverted
Flats 16 mm
Overall length 41 mm



#### HFIF<sub>10</sub>

Thread 3/8-24 U Seat type inverted Flats 16 mm Overall length 39 mm

Low Profile
\*LP stem



#### HFIF11

Thread 3/8-24 UNF port
Seat type inverted
Hex 19 mm
Overall length 38 mm



#### HFIF14

Thread 3/8-24 UNF ports (2)
Seat type inverted
Hex 19 mm
Overall length 50 mm

/// E-clips, BQ12, are on page 19. Retaining clips are on page 150.

CONTINUED



#### HFIF18

Thread 3/8-24 UNF port Seat type inverted Overall length 41 mm



#### HFIF19

Thread 3/8-24 UNF port Seat type inverted 16mm Flats 38 mm Overall length



#### HFIF26

3/8-24 UNF port Thread Seat type inverted Hex 5/8" Overall length 40 mm



#### HFIF32

Thread 3/8-24 UNF port Seat type inverted Hex 17 mm Overall length 41 mm



#### HFIF36

Thread 3/8-24 UNF port Seat type inverted Hex 16mm Overall length 39 mm



#### HFIF38

Thread 3/8-24 UNF port Seat type inverted 11/16" Hex Overall length 40 mm



#### HFIF40

Thread Seat type inverted Flats 16mm Overall length 48 mm



#### HFIF45

Thread 3/8-24 UNF port Seat type inverted 16mm Hex Overall length 39 mm

Alternative HFIF05



#### HFIF71

Thread 3/8-24 UNF port inverted Seat type 5/8" Hex 45 mm Overall length



#### HFIF72

Thread 3/8-24 UNF port inverted Seat type 17 mm Hex 47 mm Overall length



**CONTINUED** 

#### Inverted seat

#### HFIF74

Thread 3/8-24 UNF ports (2)
Seat type inverted
Hex 19 mm
Overall length 92 mm



#### HFIF83

Thread 3/8-24 UNF port
Seat type inverted
Hex 17 mm
Bend 90°
Overall length 55 mm



#### HFIF85

Thread 3/8-24 UN
Seat type inverted
Hex 11/16"
Bend 70°
Overall length 117.7 mm



#### HFIF87

Thread 3/8-24 UI
Seat type inverted
Hex 11/16"
Overall length 50 mm



#### HFIF103

Thread 3/8-24 UNF port
Seat type inverted
Bend 60°
Overall length 52 mm



#### HFIF106

Thread 3/8-24 UNF port
Seat type inverted
Flats 5/8"
Bend 60°
Overall length 68 mm



#### HFIF140

Thread 3/8-24 UNF port
Seat type inverted
Hex 17 mm
Bend 55°
Overall length 64 mm



#### **HFIF143**

Thread 3/8-24 UNF port
Seat type inverted
Flats 5/8"
Bend 60°
Overall length 68 mm



#### HFIF301

Thread 3/8-24 UNF port
Seat type inverted
Flats 16 mm
Overall length 43 mm



#### HFIF334B

Thread 3/8-24 UNF port
Seat type inverted
Hex 16 mm
Overall length 41 mm



/// E-clips, BQ12, are on page 19. Retaining clips are on page 150.

CONTINUED

## **CLIP MOUNT** 7/16-20 UNF



#### HFIF141

Thread 7/16-20 UNF port

Seat type inverted Hex 16 mm
Overall length 46 mm



#### **HFIF172**

Thread 7/16-20 UNF port
Seat type inverted
Hex 7/8"

Overall length 38 mm



## **CLIP MOUNT** 7/16-24 UNS



#### HFIF02

Thread 7/16-24 UNS port
Seat type inverted
Hex 19 mm
Overall length 38 mm

Low profile LPIF02-7\*

\*LP stem LPS-SI-SAE

Alternative HFIF24



Thread 7/16-24 UNS port
Seat type inverted
Hex 16 mm
Overall length 45 mm



#### HFIF20

Thread 7/16-24 UNS port

Seat type inverted Flats 16 mm Overall length 44 mm



#### HFIF24

Thread 7/16-24 UNS port
Seat type inverted
Hex 16 mm
Overall length 45 mm

Alternative HFIF02



#### HFIF33

Thread 7/16-24 UNS port
Seat type inverted
Hex 17 mm
Overall length 41 mm



#### HFIF35

Thread 7/16-24 Seat type inverted Flats 16 mm Overall length 46 mm



CONTINUED



#### HFIF51

Thread 7/16-24 UNS port
Seat type inverted
Hex 11/16"
Overall length 46 mm



#### HFIF73

Thread 7/16-24
Seat type inverted
Hex 17 mm
Overall length 47 mm



#### HFIF116

Thread 7/16-24 to Seat type inverted Hex 5/8"

Bend 70°

Overall length 74.7 mm



#### **HFIF142**

Thread 7/16-24
Seat type inverted
Flats 16 mm
Overall length 68 mm



## **CLIP MOUNT** 1/2-20 UNF



#### HFIF79

Thread 1/2-20 UNF port inverted
Hex 5/8"

Overall length 45 mm



/// E-clips, BQ12, are on page 19. Retaining clips are on page 150.

## **STANDARD** 1/2-20 UNF



#### HFIF03

Thread 1/2-20 UNF port
Seat type drill-point
Hex 3/4"
Overall length 50 mm



#### Inverted seat

#### HFIF06

Thread 1/2-20 UNF port
Seat type inverted
Hex 17 mm
Overall length 38 mm



## **METRIC FEMALE**

## **BOLT MOUNT** M10×1



#### HFMF50

Thread M10×1 ports (2)
Seat type drill-point
Mount hole 8-10 mm
Overall length 48 mm



#### **HFMF328**

 $\begin{array}{lll} \textbf{Thread} & \texttt{M10}\times \texttt{1} \ \texttt{port} \\ \textbf{Seat type} & \texttt{drill-point} \\ \textbf{Mount hole} & 5.5 \ \texttt{mm} \\ \textbf{Mount thread} & \texttt{M8}\times \texttt{1.25} \\ \textbf{Overall length} & \texttt{46} \ \texttt{mm} \\ \end{array}$ 



#### Inverted seat

#### HFMF18

Thread M10×1 ports (2)
Seat type inverted
Mount hole 8.5 mm
Overall length 55 mm



#### HFMF48

Thread M10×1 port
Seat type inverted
Mount hole 8.75 mm
Overall length 53 mm

Low profile LPMF48



#### HFMF69

Thread M10×1 port
Seat type inverted
Mount hole 6.4 mm
Overall length 62 mm



## **BOLT MOUNT** M11×1.5



#### HFMF79

Thread M11×1.5 ports (2)
Seat type inverted
Mount hole 11.9 mm
Overall length 56 mm

CONTINUED

### **BRACKET MOUNT** M10×1

#### Drill-point seat

#### HFMF40

Thread  $M10 \times 1$  port Seat type drill-point Overall length 42 mm



#### HFMF70

Thread Seat type Overall length

M10×1 ports (2) drill-point 54 mm



#### HFMF90

Thread M10×1 ports (2)
Seat type drill-point
Overall length 48 mm



### HFMF364

Thread M10×1 port
Seat type drill-point
Flats 17 mm
Overall length 115 mm

HFMF365



HFMF365

 $\begin{array}{lll} \textbf{Thread} & \texttt{M10} \times \texttt{1} \ \texttt{port} \\ \textbf{Seat type} & \texttt{drill-point} \\ \textbf{Flats} & \texttt{17} \ \texttt{mm} \\ \textbf{Overall length} & \texttt{115} \ \texttt{mm} \\ \end{array}$ 



Left pair HFMF364

#### **HFMF371**

Right pair

Thread  $M10 \times 1$  port Seat type drill-point Mount hole  $8.5 \,\mathrm{mm} \times 11 \,\mathrm{mm}$  Overall length  $35 \,\mathrm{mm}$ 



#### HFMF380

Thread M10×1 port
Seat type drill-point
Hex 17 mm
Overall length 148 mm



#### Inverted seat

#### HFMF317

Thread  $M10 \times 1$  port Seat type inverted Mount hole  $4.1 \, \text{mm} \times 10 \, \text{mm}$  Overall length  $48 \, \text{mm}$ 



#### HFMF324

Thread M10×1 port
Seat type inverted
Mount hole 8.8 mm (2)
Hex 19 mm
Overall length 46 mm



#### **METRIC FEMALE** CONTINUED

#### Inverted seat

#### HFMF325

Thread  $M10 \times 1$  port Seat type inverted Mount hole 9.1 mm 45 mm Overall length



#### HFMF326

Thread  $M10 \times 1$  port Seat type inverted Mount hole 8.3 mm Overall length 34 mm



#### HFMF342

Right pair

Thread  $M10 \times 1$  port Seat type inverted 25° Bend Overall length 100 mm





#### **HFMF343**

Thread  $M10 \times 1$  port Seat type inverted 25° Bend Overall length 100 mm





#### right

### **BRACKET MOUNT** M10×1.5

### Inverted seat

#### HFMF396

Thread  $M10 \times 1.5$  port Seat type inverted Overall length 44 mm



Not all clip-mount fittings come with an e-clip. The fitting will be pictured with a clip if the clip is included.

### **CLIP MOUNT** M9×1

### Inverted seat

### HFMF12

Thread  $M9 \times 1$  port inverted Seat type Hex 16mm Overall length 47 mm



CONTINUED

### **CLIP MOUNT** M10×1



#### HFMF03

Thread M10×1 port
Seat type drill-point
Hex 19 mm
Overall length 46 mm



#### HFMF05

Thread M10×1 port
Seat type drill-point
Hex 14 mm
Overall length 38 mm



Low profile LPMF05-M10X1\*
LP zinc-nickel LPMF05-M10X1Z\*
\*LP stem LPS-SD-DIN

#### HFMF08

Thread M10×1 port
Seat type drill-point
Hex 17 mm
Overall length 41 mm



Low profile LPMF08-M10X1\*
\*LP stem LPS-SD-DIN

#### HFMF24

Thread M10×1 port
Seat type drill-point
Flats 19 mm
Overall length 38 mm

Low profile LPMF24\*
\*LP stem LPS-SD-DIN

#### HFMF35

Thread M10×1 port
Seat type drill-point
Flats 19 mm
Overall length 37 mm



#### HFMF38

Thread M10×1 port
Seat type drill-point
Flats 16 mm
Overall length 37 mm



#### HFMF39

Thread M10 $\times$ 1 port Seat type drill-point Flats 16 mm Overall length 39 mm



#### HFMF54

Thread M10×1 port
Seat type drill-point
Flats 15.5 mm
Overall length 37 mm



#### HFMF55

Thread M10×1 port
Seat type drill-point
Hex 19 mm
Overall length 46 mm



#### HFMF58

Thread M10×1 port
Seat type drill-point
Hex 17 mm
Overall length 54 mm



CONTINUED



Drill-point seat

#### HFMF59

Thread  $M10 \times 1$  port Seat type drill-point 17 mm Flats Overall length 38 mm



#### HFMF62

Thread  $M10 \times 1$  port Seat type drill-point 17 mm Flats 39 mm Overall length



#### HFMF63

Thread  $M10 \times 1$  port drill-point Seat type 17 mm Hex Overall length 39 mm



#### HFMF65

Thread  $M10 \times 1$  port drill-point Seat type 17 mm Hex Overall length 39 mm



#### HFMF71

Thread  $M10 \times 1$  port Seat type drill-point 17 mm Hex 39 mm Overall length



#### HFMF96

Thread  $M10 \times 1$  port Seat type drill-point 5/8" Hex 38 mm Overall length



#### HFMF99

Thread  $M10 \times 1$  port drill-point Seat type Hex 17 mm Overall length 45 mm



#### **HFMF100**

Thread  $M10 \times 1$  port drill-point Seat type Hex 17 mm Overall length 39 mm



#### **HFMF123**

Thread  $M10 \times 1$  port Seat type drill-point Hex 17 mm Overall length 39 mm



#### HFMF124

Thread  $M10 \times 1$  port Seat type drill-point Flats 17 mm Overall length 45 mm



#### **HFMF327**

Thread  $M10 \times 1$  port Seat type drill-point Overall length 39 mm



#### **HFMF329**

Thread  $M10 \times 1$  port Seat type drill-point Flats 17 mm Overall length 38 mm



CONTINUED



► Drill-point seat

#### HFMF340

Thread  $M10 \times 1$  port Seat type drill-point 15 mm Flats 37 mm Overall length



#### **HFMF363**

Thread  $M10 \times 1$  port Seat type drill-point 17 mm Flats 38 mm Overall length



#### HFMF367

Thread  $M10 \times 1$  port Seat type drill-point 38 mm Overall length



#### **HFMF368**

Thread  $M10 \times 1$  port Seat type drill-point Overall length 38 mm



#### HFMF369

Thread  $M10 \times 1$  port Seat type drill-point 17 mm Hex Bend 5° Overall length 66 mm

HFMF370



left

#### **HFMF370**

Thread  $M10 \times 1$  port Seat type drill-point Hex 17 mm Bend 20° Overall length 66 mm



HFMF369 Left pair

#### HFMF372

Right pair

Thread  $M10 \times 1$  port Seat type drill-point Overall length 37 mm



#### **HFMF375**

Thread  $M10 \times 1$  port Seat type drill-point Hex 15 mm Overall length 36 mm



#### **HFMF381**

Thread  $M10 \times 1$  port Seat type drill-point Hex 17 mm Bend 45° Overall length 57 mm



#### **HFMF382**

Thread  $M10 \times 1$  port Seat type drill-point Hex 17 mm Bend 20° Overall length 57 mm



/// E-clips, BQ12, are on page 19. Retaining clips are on page 150.

CONTINUED



#### Drill-point seat

#### **HFMF383**

Thread  $M10 \times 1$  port Seat type drill-point Hex 17 mm 109 mm Overall length





### left

left

#### **HFMF384**

Thread  $M10 \times 1$  port Seat type drill-point Hex 17 mm Overall length 109 mm

Left pair HFMF383



#### HFMF385

Thread  $M10 \times 1$  port drill-point Seat type 17 mm Hex 45° Bend Overall length 58 mm



#### HFMF386

Thread  $M10 \times 1$  port drill-point Seat type 17 mm Hex Bend 45° Overall length 58 mm

Left pair HFMF385



#### Inverted seat

#### HFMF01

Thread  $M10 \times 1$  port Seat type inverted 17 mm Hex Overall length 38 mm

Low profile LPMF01-M10X1\* LPMF01-M10X1SS\* LP stainless \*LP stem LPS-SI-SAE

#### HFMF02

Thread  $M10 \times 1$  port Seat type inverted Flats 17 mm Overall length 47 mm

Low profile LPMF02-M10X1\* \*LP stem LPS-LI-SAE



Thread  $M10 \times 1$  port Seat type inverted Flats 17 mm Overall length 38 mm

Stainless HFMF04SS LPMF04\* Low profile LPS-SI-SAE \*LP stem



Thread  $M10 \times 1$  port Seat type inverted Overall length 39 mm



# **METRIC FEMALE** co

CONTINUED

#### Inverted seat

#### HFMF11

 $\begin{array}{lll} \textbf{Thread} & \texttt{M10} \times \texttt{1 port} \\ \textbf{Seat type} & \texttt{inverted} \\ \textbf{Flats} & \texttt{19 mm} \\ \textbf{Overall length} & \texttt{37 mm} \end{array}$ 

Low profile LPMF11 \*
\*LP stem LPS-SI-SAE

# HFMF14

Thread M10×1 port
Seat type inverted
Flats 14 mm
Overall length 45 mm

Low profile LPMF14\*
\*LP stem LPS-SI-SAE



#### HFMF15

 $\begin{array}{ll} \textbf{Thread} & \texttt{M10} \times \texttt{1} \ \texttt{port} \\ \textbf{Seat type} & \texttt{inverted} \\ \textbf{Flats} & \texttt{17} \ \texttt{mm} \\ \textbf{Overall length} & \texttt{77} \ \texttt{mm} \\ \end{array}$ 

Low profile LPMF15

#### HFMF16

Thread M10×1 port
Seat type inverted
Flats 19 mm
Overall length 37 mm

Low profile LPMF16\*
\*LP stem LPS-SI-SAE



#### HFMF20

Thread M10×1 port
Seat type inverted
Flats 17 mm
Overall length 38 mm

Low profile LPMF20\*
\*LP stem LPS-SI-SAE

#### HFMF26

Thread  $M10 \times 1$  port Seat type inverted Flats 17 mm Overall length 38 mm



#### HFMF28

Thread M10×1 port
Seat type inverted
Flats 17 mm
Overall length 37 mm

Low profile LPMF28\*
\*LP stem LPS-SI-SAE

#### HFMF29

Thread M10×1 port
Seat type inverted
Hex 17 mm
Overall length 54 mm



#### HFMF31

 $\begin{array}{ll} \textbf{Thread} & \texttt{M10} \times \texttt{1 port} \\ \textbf{Seat type} & \texttt{inverted} \\ \textbf{Flats} & \texttt{17 mm} \\ \textbf{Overall length} & \texttt{45 mm} \end{array}$ 



#### HFMF93

Thread M10×1 port
Seat type inverted
Hex 17 mm
Overall length 47 mm



# METRIC FEMALE CONTINUED

#### Inverted seat

#### **HFMF120**

Thread M10×1 port
Seat type inverted
Flats 19 mm
Bend 90°
Overall length 49 mm

Left pair HFMF121



#### **HFMF121**

Thread M10×1 port
Seat type inverted
Flats 19 mm
Bend 90°
Overall length 49 mm

Right pair HFMF120



#### **HFMF308**

Thread M10×1 port
Seat type inverted
Flats 19 mm
Bend straight
Overall length 89 mm



#### **HFMF366**

Thread  $M10 \times 1$  port Seat type inverted Flats 16 mm Overall length 45 mm



#### **HFMF393**

Thread M10×1 port
Seat type inverted
Flats 17 mm
Overall length 72 mm

Low profile LPMF15



## **CLIP MOUNT** M10×1.25

### Inverted seat

#### HFMF09

Thread M10×1.25 port
Seat type inverted
Hex 17 mm
Overall length 37 mm

Low profile LPMF09-M10X125\*
\*LP stem LPS-LI-SAE



### Drill-point seat

#### HFMF21

Thread M10×1.25 port
Seat type drill-point
Hex 17 mm
Overall length 47 mm



CONTINUED

# **CLIP MOUNT** M10×1.5

#### Inverted seat

#### **HFMF128**

Thread  $M10 \times 1.5 \text{ port}$ Seat type inverted Flats 5/8" Overall length 43 mm



#### **HFMF132**

Thread M10×1.5 port
Seat type inverted
Overall length 39.4 mm



#### HFMF397

 $\begin{array}{ll} \textbf{Thread} & \texttt{M10} \times \texttt{1.5 port} \\ \textbf{Seat type} & \texttt{inverted} \\ \textbf{Overall length} & \texttt{45 mm} \end{array}$ 



### **CLIP MOUNT** M12×1

#### Drill-point seat

#### HFMF47

Thread M12 $\times$ 1 port Seat type drill-point Flats 5/8" Overall length 46 mm





#### HFMF51

Thread M12×1 port
Seat type drill-point
Flats 16 mm
Overall length 47 mm



#### **HFMF191**

Thread M12×1 port
Seat type drill-point
Hex 19 mm
Overall length 45 mm



### Inverted seat

#### HFMF07

Thread M12×1 port
Seat type inverted
Overall length 45 mm



#### HFMF<sub>10</sub>

Thread M12×1 port
Seat type inverted
Hex 21 mm
Overall length 46 mm

Low profile LPMF10\*
\*LP stem LPS-LI-SAE

CONTINUED

#### Inverted seat

#### HFMF19

 $\begin{array}{lll} \textbf{Thread} & \textbf{M12} \times \textbf{1} \ \textbf{port} \\ \textbf{Seat type} & \textbf{inverted} \\ \textbf{Hex} & \textbf{19} \ \textbf{mm} \\ \textbf{Overall length} & \textbf{47} \ \textbf{mm} \\ \end{array}$ 



#### HFMF42

Thread M12×1 ports (2)
Seat type inverted

Overall length 57 mm



#### HFMF43

 $\begin{array}{ll} \textbf{Thread} & \texttt{M12} \! \times \! \texttt{1} \ \texttt{port} \\ \textbf{Seat type} & \texttt{inverted} \\ \textbf{Overall length} & \texttt{45} \, \texttt{mm} \end{array}$ 



#### HFMF91

Thread M12×1 port
Seat type inverted
Hex 19 mm
Overall length 40 mm



#### HFMF92

 $\begin{array}{ll} \textbf{Thread} & \texttt{M12} \times \texttt{1 port} \\ \textbf{Seat type} & \texttt{inverted} \\ \textbf{Flats} & \texttt{16 mm} \\ \textbf{Overall length} & \texttt{45 mm} \\ \end{array}$ 



# **CLIP MOUNT** M12×1.25



#### HFMF57

Thread M12×1.25 port
Seat type drill-point
Hex 19 mm
Overall length 46 mm



CONTINUED

### **SPLINE MOUNT** M10×1

### Drill-point seat

#### HFMF22

Thread M10×1 port
Seat type drill-point
Overall length 39 mm



#### HFMF27

 $\begin{array}{ll} \textbf{Thread} & \texttt{M10} \times \texttt{1} \ \texttt{port} \\ \textbf{Seat type} & \texttt{drill-point} \\ \textbf{Overall length} & \texttt{36} \, \texttt{mm} \end{array}$ 



### **BULKHEAD MOUNT** M10×1

#### Drill-point seat

#### HFMFX04

Thread M10×1 port
Seat type drill-point
Mount thread 5/8-18 UNF
Hex 19 mm
Overall length 45 mm



#### HFMFX04-M16

Thread M10  $\times$ 1 port Seat type drill-point Mount thread M16  $\times$ 1.5 Hex 17 mm Overall length 46 mm



### Inverted seat

#### HFMFX01

Thread M10×1 port
Seat type inverted
Mount thread 5/8-18 UNF
Hex 19 mm
Overall length 45 mm



### **BULKHEAD MOUNT** M10×1.25

# Inverted seat

#### HFMFX02

Thread M10×1.25 port
Seat type inverted
Mount thread 5/8-18 UNF
Hex 19 mm
Overall length 45 mm



### **BULKHEAD MOUNT** M12×1

#### Drill-point seat

#### HFMFX10

Thread M12 $\times$ 1 port Seat type drill-point Mount thread M20 $\times$ 1.5 Hex 22 mm Overall length 49 mm



### **JIC MALE** 3/8-24 UNF

#### HFIM28

Thread 3/8-24 UNF stud
Dash size -03 JIC
Stud length 12.2 mm
Hex 14 mm
Overall length 42 mm





### **JIC MALE** 7/16-20 UNF

#### HFIM29

Thread 7/16-20 UNF stud
Dash size -04 JIC
Stud length 14 mm
Hex 14 mm
Overall length 43 mm

Low profile LPIM29-7

### **BOLT MOUNT** 1/8-27 NPT

#### HFIM30

Thread 1/8-27 NPT stud
Mount hole 6.6 mm
Overall length 50 mm



# **BULKHEAD MOUNT** 3/8-24 UNF

#### HFIM02

Thread 3/8-24 UNF stud
Stud length 24 mm
Hex 16 mm
Overall length 52 mm

Low profile LPIM02-6 LP stainless LPIM02-6SS

#### HFIM05

Thread 3/8-24 UNF stud
Stud length 12 mm
Mount thread 1/2-20 UNF
Hex 16 mm
Overall length 55 mm

#### HFIM12

Overall length

Thread 3/8-24 UNF stud
Stud length 24 mm
Hex 5/8"

75 mm



CONTINUED

### **BULKHEAD** 7/16-20 UNF

#### HFIM06

Thread 7/16-20 UNF stud
Stud length 28 mm

Hex 16 mm Overall length 56 mm



### **BULKHEAD** 1/2-20 UNF

#### HFIM07

Thread 1/2-20 UNF stud

Stud length 32 mm Hex 3/4" Overall length 60 mm



### **CLIP MOUNT** 7/16-20 UNF

#### HFIM22

Thread 7/16-20 UNF stud
Stud length 13 mm
Hex 16 mm
Overall length 51 mm

/// E-clips, BQ12, are on page 19. Retaining clips are on page 150.

### **STANDARD** 1/8-27 NPT

#### HFIM19

Thread 1/8-27 NPT stud

Hex 14 mm Overall length 40 mm

Stainless HFIM19SS Low profile LPIM19

### STANDARD 1/8-28 BSPP

#### HFIM32

Thread 1/8-28 BSPP stud

Stud length 6 mm Hex 14 mm Overall length 37 mm



### STANDARD 3/8-20 BSF

#### HFIM15

Thread 3/8-20 BSF stud
Stud length 12.5 mm
Hex 5/8"
Overall length 40 mm

CONTINUED

### STANDARD 3/8-24 UNF

#### HFIM01

Thread 3/8-24 UNF stud Stud length 13 mm Hex 16mm Overall length 40 mm

HFIM01B Brass Stainless HFIM01SS Low profile LPIM01-6

#### HFIM01B

Overall length

3/8-24 UNF stud Thread Stud length 12.5 mm Hex 14 mm

40 mm

3/8-24 UNF stud

13 mm

5/8" 68 mm

#### HFIM<sub>10</sub>

Thread 3/8-24 UNF stud Stud length 12mm Hex 16mm Overall length 44 mm

#### HFIM<sub>18</sub>

Thread 3/8-24 UNF stud Stud length 12mm 16mm Hex 53 mm Overall length

#### HFIM21

HFIM11

Stud length

Overall length

Thread

Hex

Thread 3/8-24 UNF stud Stud length 12.5 mm Hex 5/8" 53 mm Overall length



Thread 3/8-24 UNF stud Stud length 12<sub>mm</sub> 16mm Hex Overall length 71 mm

#### HFIM35

Thread 3/8-24 UNF stud Stud length 11.8 mm Hex 9/16" 45 mm Overall length

#### HFIM36

Thread 3/8-24 UNF stud 11.8 mm Stud length 14 mm Hex 52mm Overall length



### STANDARD 7/16-20 UNF

#### HFIM03

7/16-20 UNF stud Thread Stud length 12mm Hex 16<sub>mm</sub> Overall length 40 mm

Stainless HFIM03SS Low profile LPIM03-7

#### HFIM09

7/16-20 UNF stud Thread Stud length 13.5 mm Hex 16<sub>mm</sub> Overall length 69 mm



CONTINUED

#### HFIM<sub>16</sub>

Thread 7/16-20 UNF stud

Stud length 1/2" Hex 17 mm Overall length 61 mm



#### HFIM27

Thread 7/16-20 UN Stud length 13 mm Hex 5/8"

Overall length 63 mm



#### HFIM40

Thread 7/16-20 UNF stud

Stud length13.5 mmHex16 mmOverall length42 mm



# STANDARD 7/16-24 UNS

#### HFIM13

Thread 7/16-24 UNS stud

Stud length12 mmHex16 mmOverall length40 mm



#### HFIM14

Thread 7/16-24 UNS stud

Stud length 12 mm Hex 16 mm Overall length 78 mm



### STANDARD 1/2-20 UNF

#### HFIM08

Thread 1/2-20 UNF stud

Stud length 15 mm Hex 17 mm Overall length 43 mm



#### HFIM24

Thread 1/2-20 UNF stud
Stud length 12 mm
Hex 5/8"

Overall length 44 mm



# **STANDARD** 11/16-16 UN

#### HFIM04

Thread 11/16-16 UN stud

Stud length 20 mm Hex 19 mm Overall length 50 mm



### **BULKHEAD MOUNT** M10×1

#### HFMM02

Thread M10×1 stud
Stud length 23 mm
Hex 15 mm
Overall length 51 mm

Low profile

LPMM02-M10X1

#### HFMM18

Thread Stud length Overall length M10×1 stud 28 mm 56 mm



#### HFMM20

Thread M10×1 stud
Stud length 24 mm
Hex 14 mm
Overall length 81 mm

### **BULKHEAD MOUNT** M10×1.25

#### HFMM11

Thread M10×1.25 stud
Stud length 15 mm
Hex 14 mm
Overall length 43 mm

#### HFMM21

Thread M10×1.25 stud

Stud length 24 mm

Hex 14 mm

Overall length 76 mm

# **BULKHEAD MOUNT** M12×1

#### HFMM09

Thread M12×1 stud
Stud length 28 mm
Hex 17 mm
Overall length 56 mm

## **BULKHEAD MOUNT** M12×1.5

#### HFMM10

Thread M12×1.5 stud
Stud length 33 mm
Hex 17 mm
Overall length 61 mm

CONTINUED

### **CLIP MOUNT** M10×1

Not all clip mount fittings include an e-clip. Refer to each fitting's image to see if a clip is included.

#### HFMM12

Thread M10  $\times$ 1 stud Stud length 15 mm Hex 17 mm Overall length 50 mm



#### **HFMM303**

Thread M10×1 stud
Stud length 16 mm
Hex 17 mm
Overall length 52 mm



/// E-clips, BQ12, are on page 19. Retaining clips are on page 150.

### **STANDARD** M10×1

#### HFMM01

Thread  $M10 \times 1$  stud Stud length 17 mmHex 16 mmOverall length 45 mm



Low profile LPMM01-M10X1

#### HFMM03

Thread M10×1 stud
Stud length 14.3 mm
Hex 14 mm
Overall length 43 mm



Low profile LPMM03-M10X1 LP zinc-nickel LPMM03-M10X1Z

#### HFMM06

Thread M10×1 stud
Stud length 13 mm
Hex 16 mm
Overall length 41 mm



Stainless HFMM06SS Low profile LPMM06-M10X1

#### HFMM08

Thread M10×1 stud
Stud length 17 mm
Hex 17 mm
Overall length 78 mm



#### HFMM22

 $\begin{array}{lll} \textbf{Thread} & \texttt{M10} \times \texttt{1} \; \text{stud} \\ \textbf{Stud length} & \texttt{33} \, \text{mm} \\ \textbf{Hex} & \texttt{14} \, \text{mm} \\ \textbf{Overall length} & \texttt{62} \, \text{mm} \end{array}$ 



LP zinc-nickel LPMM22Z

#### HFMM23

Thread M10×1 stud
Stud length 14 mm
Hex 14 mm
Overall length 43 mm



CONTINUED

### **STANDARD** M10×1.25

#### HFMM04

Overall length 41 mm

Low profile LPMM04-M10X125

# **STANDARD** M10×1.5

#### HFMM24

Thread  $M10 \times 1.5$  stud Stud length 13 mm

Stud length 13 mm Hex 16 mm Overall length 41 mm



### **STANDARD** M12×1

#### HFMM05

 $\begin{array}{lll} \textbf{Thread} & \texttt{M12} \times \texttt{1} \; \text{stud} \\ \textbf{Stud length} & \texttt{18} \, \text{mm} \\ \textbf{Hex} & \texttt{17} \, \text{mm} \\ \textbf{Overall length} & \texttt{47} \, \text{mm} \end{array}$ 



#### HFMM13

 $\begin{array}{lll} \textbf{Thread} & \texttt{M12} \times \texttt{1} \; \texttt{stud} \\ \textbf{Stud length} & \texttt{23} \, \texttt{mm} \\ \textbf{Hex} & \texttt{16} \, \texttt{mm} \\ \textbf{Overall length} & \texttt{77} \, \texttt{mm} \end{array}$ 



# **STANDARD** M12×1.25

#### HFMM17

Thread M12×1.25 stud
Stud length 17 mm
Hex 17 mm
Overall length 45 mm



### **BRACKET MOUNT**

#### HFC04

Mount hole6.5 mmWidth39 mmOverall length30 mm



#### HFC05

Mount hole8.5 mmWidth20 mmOverall length30 mm

Low profile LPC05



#### HFC<sub>18</sub>

Mount hole8.7 mmWidth24 mmOverall length48 mm



#### HFC19

Mount hole8.7 mmWidth24 mmOverall length48 mm



#### **HFC316**

Mount hole 10 mm Width 22 mm Overall length 36 mm



#### **HFC319**

Mount hole9 mmWidth45 mmOverall length50 mm

Right pair HFC320



#### **HFC320**

Mount hole9 mmWidth45 mmOverall length50 mm

Left pair HFC319



#### **HFC321**

Mount hole9 mmWidth55 mmOverall length50 mm

Right pair HFC324



#### **HFC322**

Mount hole 8.5 mm Width 40 mm Overall length 42 mm

Right pair HFC325



#### **HFC323**

Mount hole 8.5 mm Width 45 mm Overall length 48 mm

Right pair HFC326



CONTINUED

#### **HFC324**

Mount hole 9mm Width 55 mm 50 mm Overall length

Left pair

HFC321



#### **HFC325**

Mount hole 8.5 mm Width 40 mm Overall length 42 mm

Left pair



#### **HFC326**

Mount hole 8.5 mm Width 45 mm Overall length 48 mm

Left pair

HFC323



**HFC338** 

Mount hole 9mm Width 18 mm Overall length 53 mm

Right pair HFC339



#### **HFC339**

Mount hole 9mm Width 18mm Overall length 53 mm

HFC338 Left pair



#### **HFC341**

Mount hole 9mm Width 23 mm Overall length 29 mm



#### **HFC342**

Mount hole 9 mm Width 23 mm Overall length 29 mm



#### HFC343

Mount hole 8.5 mm Width 40 mm Overall length 37 mm

Right pair HFC344



#### **HFC344**

Mount hole 8.5 mm Width 40 mm 37 mm Overall length

Left pair

HFC343

HFC345



right

#### **HFC345**

Mount hole 10 mm Width 100 mm Overall length 44 mm

Right pair HFC346



#### **HFC346**

Mount hole 10 mm Width 100 mm Overall length 44 mm

Left pair



#### **HFC347**

Mount nut  $M8 \times 1$ Width 20 mm Overall length 25 mm



CONTINUED

#### **HFC348**

 $\begin{array}{ll} \mbox{Mount nut} & \mbox{M8} \times 1.25 \\ \mbox{Width} & 22 \, \mbox{mm} \\ \mbox{Overall length} & 66 \, \mbox{mm} \end{array}$ 



left

left

#### **HFC350**

Mount hole9 mmWidth67 mmOverall length25 mm



#### **HFC351**

Mount hole9.5 mmWidth90 mmOverall length24 mm

Right pair H



#### **HFC352**

Mount hole9.5 mmWidth90 mmOverall length24 mm

Left pair HFC351



#### **HFC353**

Mount hole8.5 mmWidth24 mmOverall length73 mm

Right pair HFC354

#### **HFC354**

Mount hole8.5 mmWidth24 mmOverall length73 mm

Left pair HFC353



#### **HFC355**

Mount hole10 mmWidth20 mmOverall length40 mm

Right pair

HFC356

#### **HFC356**

Mount hole10 mmWidth20 mmOverall length40 mm

Left pair HFC355



#### **HFC357**

Mount hole10 mmWidth88 mmOverall length50 mm

Right pair HFC358

#### **HFC358**

Mount hole10 mmWidth88 mmOverall length50 mm

Left pair HFC357



#### **HFC359**

Mount hole9 mmWidth25 mmOverall length60 mm

Right pair HFC360



left

#### **HFC360**

Mount hole9 mmWidth20 mmOverall length25 mm

Left pair HFC359



HFC362

**CONTINUED** 

**HFC361** 

 $\begin{array}{ll} \mbox{Mount nut} & \mbox{M6} \times 1 \\ \mbox{Width} & \mbox{35} \, \mbox{mm} \\ \mbox{Overall length} & \mbox{53} \, \mbox{mm} \end{array}$ 

Right pair



HFC362

 $\begin{array}{ll} \mbox{Mount nut} & \mbox{M6}\!\times\!1 \\ \mbox{Width} & 35\,\mbox{mm} \\ \mbox{Overall length} & 53\,\mbox{mm} \end{array}$ 

Left pair HFC361



**HFC365** 

Mount hole9 mmWidth35 mmOverall length42 mm

Right pair HFC366



**HFC366** 

Mount hole 9 mm
Width 35 mm
Overall length 42 mm

Left pair HFC365



**HFC367** 

Mount hole10 mmWidth40 mmOverall length42 mm

Right pair HFC368



**HFC368** 

Mount hole10 mmWidth40 mmOverall length42 mm

Left pair HFC367



**HFC369** 

Mount hole7 mmWidth30 mmOverall length58 mm

Right pair HFC370



**HFC370** 

Mount hole7 mmWidth30 mmOverall length58 mm

Left pair HFC369



**HFC371** 

Mount hole10 mmWidth33 mmOverall length55 mm

Right pair HFC372



**HFC372** 

 $\begin{array}{ll} \mbox{Mount hole} & 10\,\mbox{mm} \\ \mbox{Width} & 33\,\mbox{mm} \\ \mbox{Overall length} & 55\,\mbox{mm} \end{array}$ 

Left pair HFC371 right



**HFC373** 

Mount hole8 mmWidth45 mmOverall length75 mm

Right pair HFC374



**HFC374** 

Mount hole8 mmWidth45 mmOverall length75 mm

Left pair HFC373



CONTINUED

#### **HFC379**

Mount hole10 mmWidth34 mmOverall length50 mm

Right pair HFC380



#### **HFC380**

Mount hole10 mmWidth34 mmOverall length50 mm

Left pair HFC379



#### **HFC381**

Mount hole10 mmWidth35 mmOverall length69 mm

Right pair HFC382



#### HFC382

Mount hole 10 mm Width 35 mm Overall length 69 mm

Left pair HFC381



# **CLIP MOUNT**

Not all clip mount fittings include an e-clip. Refer to each fitting's image to see if a clip is included.

#### HFC01

Hex17 mmWidth17 mmOverall length33 mm

Low profile LPC01



#### HFC02

Hex 17 mm Width 17 mm Overall length 34 mm



#### HFC06

 $\begin{array}{ll} \text{Flats} & 17\,\text{mm} \\ \text{Width} & 17\,\text{mm} \\ \text{Overall length} & 34\,\text{mm} \end{array}$ 

Low profile LPC06



#### HFC07

Flats 19 mm Width 19 mm Overall length 35 mm

Low profile LPC07



#### HFC09

Flats 17 mm Width 17 mm Overall length 34 mm

Low profile

LPC09

#### HFC<sub>10</sub>

Flats 19 mm Width 19 mm Overall length 35 mm



CONTINUED

#### HFC12

Flats 17 mm Width 17 mm Overall length 35 mm



#### HFC13

Flats 17 mm Width 17 mm Overall length 33 mm



#### HFC15

Hex19 mmWidth19 mmOverall length37 mm



#### HFC17

 $\begin{array}{ll} \text{Flats} & 16\,\text{mm} \\ \text{Width} & 16\,\text{mm} \\ \text{Overall length} & 37\,\text{mm} \end{array}$ 

Low profile LPC17



#### HFC301A

Width 20 mm Overall length 33 mm

Low profile LPC301 LP zinc-nickel LPC301Z



Flats 16.8 mm Width 19 mm Overall length 36 mm



### **HFC331**

Hex17 mmWidth33 mmOverall length34 mm

Low profile

LPC331



# FITTING BRACKETS ATTACH WITH CLIP

#### **BQB01**

Mount hole

9 mm



#### **BQB04**

Mount hole

8.4 mm



#### **BQB06**

Mount hole

5 mm



#### **BQB244**

Mount hole

6.8 mm



#### **BQB259**

16mm



#### Mount hole

Hex hole

8.8 mm

### **BQB315**

Mount hole

Right pair

10 mm **BQB316** 



#### **BQB316**

Mount hole

Left pair

10 mm **BQB315** 



#### **BQB317**

Mount hole

9mm

Right pair

**BQB318** left

#### **BQB318**

Mount hole

Left pair

9mm **BQB317** 



#### **BQB319**

Mount hole

 $9\,\text{mm}$ 



/// Retaining clips are on page 150.

**CONTINUED** 

# FITTING BRACKETS ATTACH WITH SCREWS

#### **BQB05**

Mount hole

9mm



#### **BQB07**

Mount hole

12.4 mm



#### **BQB10**

Mount hole

Right pair

9.6 mm BQB11 left

#### **BQB11**

Mount hole

Left pair



#### **BQB14**

Mount hole

Right pair

8.6 mm

BQB15



#### **BQB15**

Mount hole

Left pair



#### **BQB20**

Mount hole

9mm



#### **BQB24**

Mount hole

Right pair

8.8 mm BQB25



#### **BQB25**

Mount hole

Left pair

8.8 mm BQB24



#### **BQB26**

Mount hole

7 mm



#### **BQB29**

Mount hole

9.6 mm



#### **BQB30**

Mount hole

10.4 mm



CONTINUED

#### **BQB39**

Mount hole

Right pair



#### **BQB40**

Mount hole

Left pair



#### **BQB41**

Mount hole

Right pair



#### **BQB42**

Mount hole

Left pair



#### **BQB50**

Mount hole



#### **BQB64**

Mount hole

Right pair



#### **BQB65**

Mount hole

Left pair



#### **BQB75**

Mount hole



#### **BQB83**

Mount hole





#### **BQB86**

Mount hole

Right pair



#### **BQB87**

Mount hole

Left pair



#### BQB88

Mount hole

7.7 mm



/// Find Bracket Retaining Screws, BQ71, on page 19.

CONTINUED

#### **BQB89**

Mount hole

10.4 mm



#### **BQB90**

Mount hole

Right pair

9mm

BQB91



#### **BQB91**

Mount hole

Left pair



#### **BQB105**

Mount hole

9mm



#### **BQB111**

Mount hole

Right pair



#### **BQB112**

Mount hole

Left pair

 $8.8 \, \text{mm} / 8.8 \, \text{mm} \times 12 \, \text{mm}$ 

**BQB111** 



#### **BQB115**

Mount hole

9.6 mm



#### **BQB118**

Mount hole

9.4 mm



#### **BQB119**

Mount hole

Right pair

9.2 mm BQB120



#### **BQB120**

Mount hole

Left pair



#### **BQB151**

Mount hole

Left pair



#### **BQB152**

Mount hole

Right pair



right

**CONTINUED** 

#### **BQB166**

Mount hole

9 mm



#### **BQB171**

Mount hole

8.2 mm



#### **BQB185**

Mount hole

Left pair



#### **BQB186**

Mount hole

Right pair

16.3 mm BQB185



#### **BQB312**

Mount hole

6.3 mm

Right pair **BQB313** 



#### **BQB313**

Mount hole

Left pair

6.3 mm

**BQB312** 



#### **BQB336**

Mount hole

7.5 mm

Right pair **BQB337** 



#### **BQB337**

Mount hole

Left pair



#### **BQB338**

Mount hole

10 mm

Right pair **BQB339** 



#### **BQB339**

Mount hole

Left pair



#### **BQB415**

Hole

5/16"

Wire bracket, designed for HFIF120.



/// Find Bracket Retaining Screws, BQ71, on page 19.

**CONTINUED** 

# **CENTER BRACKETS**

#### **BQB08**

Mount hole

8.8 mm

Left pair

BQB09



#### **BQB09**

Mount hole

Right pair BQB08



#### **BQB18**

Mount hole

8.9 mm

Right pair

BQB19



#### **BQB19**

Mount hole

Left pair

8.9 mm

8.8 mm

BQB18



#### **BQB23**

Mount hole

8.8 mm



### **BQB35**

Mount nut

 $M6 \times 1$ 



#### **BQB36**

Mount hole

8.4 mm

Right pair

BQB37



#### **BQB37**

Mount hole

Left pair

8.4 mm

BQB36



#### **BQB38**

Mount thread

5/16-18 UNF



#### **BQB48**

Mount hole

6.4 mm



#### **BQB52**

Mount hole

9.2 mm



#### BQB69

Mount nut

 $M8 \times 1.25$ 



CONTINUED

**BQB72** 

Mount hole

6.9 mm

Right pair

BQB73



**BQB73** 

Mount hole

Left pair

6.9 mm

BQB72



**BQB85** 

Mount hole

9.2 mm



**BQB109** 

Mount hole

 $10 \, \text{mm} \times 7 \, \text{mm}$ 

Right pair BQB110



**BQB110** 

Mount hole

Left pair



**BQB162** 

Mount hole

6.4 mm / 5 mm

Left pair BQB163



**BQB163** 

Mount hole

Right pair

6.4 mm / 5 mm

**BQB162** 



**BQB168** 

Mount nut

 $M6 \times 1$ 

8.5 mm



**BQB169** 

Mount hole

9mm



**BQB257** 

Mount hole



**BQB258** 

Mount hole

8.7 mm



**BQB284** 

Mount hole

7 mm / 6.2 mm

Left pair BQB285



**BQB285** 

Mount hole

Right pair

7 mm / 6.2 mm BQB284



CONTINUED

# **CENTERS WITH GROMMET**

The following center brackets include the BQ234 grommet pictured.

#### **BQB31**

Mount hole

8.6 mm



#### **BQB174**

Mount hole

9mm

Left pair BQB195



right

**BQB195** 

Mount hole 9mm

Right pair BQB174



left

#### **BQB221**

Mount hole

9mm



#### **BQB222**

Mount hole

9mm

Left pair

BQB223



right

**BQB223** 

Mount hole

Right pair BQB222

9mm



left

#### **BQB224**

Mount hole

9mm

Left pair

BQB225



right

#### **BQB225**

Mount hole

9mm

Right pair BQB224



left

# LOW PROFILE

Hose		Imperial Female	
Braided Brake Hose	106	Standard Mount	117
Tools		Clip Mount	117
Braided Hose Shears	106	Bulkhead Mount	117
Skiving Tool	106	Metric Female	
General Fittings		Standard Mount	118
Crimp Shell	107	Bolt Mount	118
Female Swivel	107	Clip Mount	118
Male Swivel	108	Imperial Male	
Crimp Tee	110	JIC Male	120
Lifesaver	111	Bulkhead Mount	120
Universal	111	Standard Mount	120
Clutch	111	Metric Male	
Stems	112	Bulkhead Mount	121
Block Banjo		Standard Mount	121
8 mm hole	113	Center Support	
10 mm hole	113	Bracket Mount	122
Round Banjo		Clip Mount	122
10 mm hole	114	,	
11 mm hole	116		
7/16" hole	116		

# HOSE

### **BRAIDED BRAKE HOSE**

Unjacketed Braided Hose

BQ301 For off-road use only.

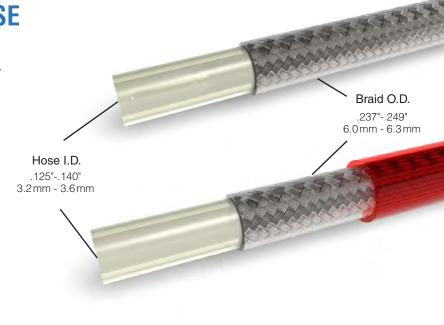
#### Jacketed Braided Hose

BQ302BK Solid black jacket BQ303 Clear jacket BQ303RD Red jacket BQ303BL Blue jacket BQ303BK Smoke jacket

Carriers 23 Wires per Carrier

Hose Wall 0.40" / 10mm 3,000 psi Operating Pressure **Burst Pressure** 12,000 psi 2.0" / 50.8 mm Bend Radius

-65°F to 450°F / -54°C to 232°C Temperature Range



Compatible with DOT 3, 4, 5 (silicone-based), and 5.1 brake fluids, plus oil and most fluids. Warning: No gases or acids should be used.

/// Braided grommets are listed within grommets on page 18.

# **TOOLS**

### **BRAIDED HOSE SHEARS**

**BQ2104** 



# **SKIVING TOOL**

**BQ436** 



and Low Profile crimps.

Uses a common No. 9 single-edge razor blade.

/// Skiving instructions are in the hose assembly manual.

# **GENERAL FITTINGS**

### **CRIMP SHELL**

#### **LP121**

LP stainless LP121SS LP zinc-nickel LP121Z



/// Instructions for assembling low profile fittings can be found in the hose assembly manual.

### **FEMALE SWIVEL** 3/8-24 UNF

#### LP09W-6

Thread 3/8-24 UNF
Seat type 37° drill-point
Bend straight
Overall length 42 mm



LP09W-6C



# LP11-6

Standard LP chrome

Thread 3/8-24 UNF
Flare 37° double
Bend 90°
Tube size 3/16"
Overall length 44 mm

Standard HF11 Stainless HF11SS Alternative LP11W-6



#### **LP10W-6**

Thread 3/8-24 UNF
Seat type 37° drill-point
Bend 45°
Tube size 1/4"
Overall length 57 mm

Standard HF10 In chrome LP10W-6C

#### **LP11W-6**

Thread 3/8-24 UNF
Seat type 37° drill-point
Bend 90°
Tube size 1/4"
Overall length 56 mm

Alternative LP11-6

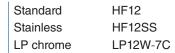


wire-lock

# **FEMALE SWIVEL** 7/16-20 UNF

#### LP12W-7

Thread 7/16-20 UNF
Seat type 37° drill-point
Bend straight
Overall length 42 mm





#### LP13W-7

Thread 7/16-20 UNF
Seat type 37° drill-point
Bend 45°
Tube size 1/4"

Overall length 60 mm

Standard HF13 Stainless HF13SS LP chrome LP13W-7C wire-lock

# **GENERAL FITTINGS**

#### **CONTINUED**

#### LP14W-7

7/16-20 UNF Thread Seat type 37° drill-point

Bend 90° Tube size 1/4" Overall length 56 mm

Standard HF14 LP chrome LP14W-7C



### **FEMALE SWIVEL** M10×1

#### **LP128W**

Thread  $M10 \times 1$ 37° inverted Seat type Bend straight Overall length 38 mm



# MALE SWIVEL 3/8-24 UNF

#### **LP16-6**

Thread 3/8-24 UNF Flare 45° double Bend straight Tube size 3/16" Overall length 55 mm





#### **LP33-6**

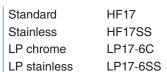
Thread 3/8-24 UNF 45° double Flare 45° Bend Tube size 3/16" Overall length 70 mm

Standard HF33 Stainless HF33SS LP chrome LP33-6C LP stainless **LP33-6SS** 



#### **LP17-6**

Thread 3/8-24 UNF Flare 45° double 90° Bend Tube size 3/16" Overall length 49 mm





Thread 3/8-24 UNF Flare 45° double 35° Bend Tube size 3/16" Overall length 91 mm

Stainless HF45SS LP chrome LP45-6C



#### CONTINUED

#### **LP46-6**

Thread 3/8-24 UNF Flare 45° double Bend 90° Tube size 3/16" Overall length 60 mm





## MALE SWIVEL 7/16-24 UNS

#### LP06-7

Thread 7/16-24 UNS
Flare 45° double
Bend 90°
Tube size 1/4"
Overall length 64 mm

Standard HF06



#### LP07-7

Thread 7/16-24 UNS
Flare 45° double
Bend 45°
Tube size 1/4"
Overall length 80 mm



#### LP15-7

Thread 7/16-24 UNS
Flare 45° double
Bend straight
Tube size 1/4"
Overall length 58 mm



## **MALE SWIVEL** M10×1

#### LP08Z

Thread  $M10 \times 1$ Flare DIN Bend straight Tube size 3/16" Overall length  $74 \,\mathrm{mm}$ 



#### LP34-M10X1

Thread M10×1
Flare 45° double
Bend straight
Tube size 3/16"
Overall length 77 mm



LP stainless LP34-M10X1SS

CONTINUED

#### LP82-M10X1

Thread  $M10 \times 1$ Flare DIN Bend straight Tube size 3/16" Overall length 69.5 mm



HF82 Standard

LP zinc-nickel LP82-M10X1Z

#### **LP125**

Thread  $M10 \times 1$ Flare DIN Bend 90° Tube size 3/16" Overall length 48.2 mm

HF158 Standard



#### **LP126**

Thread  $M10 \times 1$ Flare DIN 45° Bend Tube size 3/16" Overall length 66.3 mm



#### **LP127**

Thread  $M10 \times 1$ Flare DIN Bend straight Tube size 3/16" Overall length 58.2 mm



## MALE SWIVEL M10×1.25

#### LP145-M10X125

M10×1.25 Thread Flare 45° double Bend straight 3/16" Tube size Overall length 71.2 mm



## **CRIMP TEE**

#### **LP124**

Mount hole 8mm

LP stainless LP124SS



CONTINUED

## **LIFESAVER**

#### LP01-3

Tube size 3/16"

Standard Stainless HF01 HF01SS



#### LP01-4

Tube size

Standard

1/4"

HF26



#### LP01-5

Tube size 5/16"

Standard HF27



/// Instructions for using lifesavers can be found in the hose assembly manual.

## **UNIVERSAL**

#### LP02

Tube size 3/16"
Overall length 105 mm

Standard

HF02



#### LP03

Tube size 1/4"

Overall length 105 mm

Standard



/// Instructions for using universal fittings can be found in the hose assembly manual.

## **CLUTCH**

#### **LP156**

Standard HF114



O-Ring included.

CONTINUED

## **STEMS** FEMALE SEAT

Image	Seat type	Spec	Length	Common Fitments
	Inverted	SAE	Short	LPIF01, LPIF02, LPMF01, LPMF09
	Inverted	SAE	Long	LPMF02
	Drill-point	DIN	Short	LPMF08
	Inverted	JIC	Short	
	Drill-point	SAE	Short	
	Drill-point	JIC	Short	
	Image	Inverted  Inverted  Drill-point  Inverted  Drill-point	Inverted SAE  Inverted SAE  Drill-point DIN  Inverted JIC  Drill-point SAE	Inverted SAE Short  Inverted SAE Long  Drill-point DIN Short  Inverted JIC Short  Drill-point SAE Short

## **STEMS** TUBE STYLE

Part Number	Image	Spec	Length	Tube Nuts
LPS-T-DIN		DIN	Tube	Use with BQ9150 or BQ9151
LPS-T-JIC		JIC	Tube	Use with BQ9150 or BQ9151
LPS-T-SAE		SAE	Tube	Use with BQ9150 or BQ9151

## **TUBE NUTS** FOR LOW PROFILE STEMS

Part Number	Image	Thread	Thread Depth	Hex
BQ9150		7/16-20 UNF	12.25 mm	9/16"
BQ9151		3/8-24 UNF	10.25 mm	7/16"

/// Learn how to assemble low profile fittings in the hose assembly manual.

## **BLOCK BANJO**

## 10 MM HOLE

#### LPB12-10M

Hole 10 mm
Thickness 11.5 mm
Width 20 mm
Bend 10°
Overall length 52 mm



Standard HFB12

#### LPB14

Hole 10 mm
Thickness 13 mm
Width 20 mm
Bend 20°
Overall length 50.5 mm

Standard HFB14



#### LPB493-10M

Hole 10 mm Thickness 1/2" Width 18 mm Bend 90° Overall length 72 mm



left

Standard HFB493 Right pair LPB494-10M

#### LPB494-10M

 Hole
 10 mm

 Thickness
 1/2"

 Width
 18 mm

 Bend
 90°

 Overall length
 72 mm



Standard HFB494 Left pair LPB493-10M

## **ROUND BANJO**

## **8 MM HOLE**

#### **LPB27-8M**

Hole8 mmThickness6.5 mmWidth14 mmBendstraightOverall length49 mm



bendable to 45°

Standard HFB27

## **ROUND BANJO**

CONTINUED

## 10 MM HOLE 17 MM WIDTH

#### LPB01-10M

Hole 10 mm **Thickness** 8mm Width 17 mm Bend straight Overall length 48.1 mm



bendable to 45°

Standard HFB01 LP chrome LPB01-10MC LPB01-10MSS LP stainless

Anodized aluminum

Black LPB01-10MABK Blue LPB01-10MABL LPB01-10MARD Red



#### LPB01-20-10M

Hole 10 mm **Thickness** 8 mm Width 17 mm Bend 20° Overall length 48.7 mm



#### LPB01-45-10M

Hole 10mm **Thickness** 8mm Width 17 mm 45° Bend Overall length 48.7 mm



#### Anodized aluminum

LPB01-45-10MABK Black Blue LPB01-45-10MABL Red LPB01-45-10MARD



#### LPB01-75-10M

Hole 10 mm **Thickness** 8 mm Width 17 mm 75° Bend Overall length 30.7 mm



#### LPB01-90-10M

Hole 10 mm Thickness 8mm Width 17 mm Bend 90° Overall length 22.1 mm



Standard HFB32 Anodized aluminum

LPB01-90-10MABK Black Blue LPB01-90-10MABL Red LPB01-90-10MARD



#### LPB455-10M

Hole 10 mm Thickness 8mm Width 17 mm Bend straight 75.4 mm Overall length



Standard HFB194

## ROUND BANJO

#### CONTINUED

#### **LPB653**

Hole 10 mm
Thickness 8 mm
Width 17 mm
Bend 20°
Overall length 46.5 mm



#### **LPB654**

Hole 10 mm
Thickness 8 mm
Width 17 mm
Bend 45°
Overall length 39.4 mm



#### **LPB655**

Hole 10 mm
Thickness 8 mm
Width 17 mm
Bend 90°
Overall length 22.1 mm



## 10 MM HOLE 18 MM WIDTH

#### LPB09-10M

Hole 10 mm
Thickness 10 mm
Width 18 mm
Bend straight
Overall length 48.7 mm



bendable to 45°

Standard HFB09
Stainless HFB09SS
LP chrome LPB09-10MC
LP stainless LPB09-10MSS

#### LPB09-45-10M

Hole 10mm
Thickness 10mm
Width 18mm
Bend 45°
Overall length 48.2mm



#### LPB09-75-10M

Hole 10 mm
Thickness 10 mm
Width 18 mm
Bend 75°
Overall length 31.4 mm



#### LPB09-90-10M

Hole 10 mm
Thickness 10 mm
Width 18 mm
Bend 90°
Overall length 23 mm



#### LPB171-10M

Hole 10 mm
Thickness 8 mm
Width 18 mm
Bend 40°
Overall length 59.8 mm



LP chrome LPB171-10MC

#### **LPB656**

Hole 10 mm
Thickness 10 mm
Width 18 mm
Bend 20°
Overall length 46.6 mm



## ROUND BANJO

#### CONTINUED

#### **LPB657**

Hole 10 mm
Thickness 10 mm
Width 18 mm
Bend 45°
Overall length 39.4 mm



#### **LPB658**

Hole 10 mm
Thickness 10 mm
Width 18 mm
Bend 90°
Overall length 23 mm



## 11 MM HOLE

#### LPB178-7

Hole 11 mm
Thickness 8.5 mm
Width 20 mm
Bend 40°
Overall length 58.3 mm



LP chrome LPB178-7C

## 12 MM HOLE

#### LPB47-12M

Hole 12mm
Thickness 10mm
Width 19mm
Bend straight
Overall length 50.2mm



bendable to 45°

Standard HFB47 Stainless HFB47SS

## 7/16" HOLE

#### LPB448-7

Hole 7/16"
Thickness 10 mm
Width 19 mm
Bend straight
Overall length 48.7 mm



bendable to 45°

Standard HFB448 LP stainless LPB448-7SS

#### LPB448-45-7

Hole 7/16"
Thickness 10 mm
Width 19 mm
Bend 45°
Overall length 42 mm



#### LPB448-90-7

Hole 7/16"
Thickness 10 mm
Width 19 mm
Bend 90°
Overall length 45.2 mm



## **LPB652**

Hole 7/16"
Thickness 10 mm
Width 19 mm
Bend 35°
Overall length 50.7 mm



Standard HFB682

## IMPERIAL FEMALE

### STANDARD MOUNT

#### LPIF126-6

Thread 3/8-24 UNF port Seat type inverted 8mm Flats Overall length 42.7 mm

LP chrome LPIF126-6C



## **BULKHEAD MOUNT**

#### LPIFX01

Thread 7/16-24 UNS port Mount thread 5/8-18 UNF 49.2 mm Overall length





## **CLIP MOUNT**

Not all clip-mount fittings come with an e-clip. The fitting will be pictured with a clip if the clip is included.

#### LPIF01

Thread 3/8-24 UNF port Seat type inverted 17 mm Hex Overall length 41.5 mm

Standard HFIF01 Brass HFIF01B Stainless HFIF01SS Alternative LPIF01-6 \* \* LP stem LPS-SI-SAE



#### **LPIF01-6**

Thread 3/8-24 UNF port Hex 17 mm

LP chrome LPIF01-6C LP stainless LPIF01-6SS



#### LPIF05

Thread 3/8-24 UNF port Hex 19 mm



#### LPIF<sub>10</sub>

Thread 3/8-24 UNF port Flats 16mm



#### **LPIF02-7**

Thread 7/16-24 UNS port Hex 17 mm



/// E-clips, BQ12, are on page 19. Retaining clips are on page 150.

## **METRIC FEMALE**

## **STANDARD MOUNT** M10×1

#### LPMF62Z

Thread M10 $\times$ 1 port Flats 17 mm



### **BOLT MOUNT** M10×1

#### LPMF48

Thread M10×1 port
Seat type inverted
Mount hole 8.8 mm
Overall length 57.2 mm



## \_\_\_\_ LPMF322-M10X1

Thread M10  $\times$  1 port Seat type inverted Mount hole M8  $\times$  1.25 Overall length 46.2 mm



Not all clip-mount fittings come with an e-clip. The fitting will be pictured with a clip if the clip is included.

## **CLIP MOUNT** M10×1

#### LPMF01-M10X1

Thread M10 $\times$ 1 port Hex 17 mm

LP stainless LPMF01-M10X1SS

#### LPMF02-M10X1

Thread M10 $\times$ 1 port Flats 17 mm



#### LPMF04

Thread M10 $\times$ 1 port Flats 17 mm



#### LPMF05-M10X1

Thread M10  $\times$  1 port Hex 14 mm

LP zinc-nickel LPMF05-M10X1Z



#### LPMF08-M10X1

Thread M10 $\times$ 1 port Hex 17 mm



#### LPMF11

Thread M10  $\times$  1 port Flats 19 mm



## METRIC FEMALE CONTINUED

#### LPMF14

Thread M10 $\times$ 1 port Flats 17 mm



#### LPMF15

Thread M10×1 port
Seat type inverted
Flats 17 mm
Overall length 77 mm

HFMF393



#### LPMF16

Thread M10×1 port Flats 19 mm



#### LPMF20

Standard

Thread M10 $\times$ 1 port Flats 17 mm



#### LPMF24

Thread M10×1 port Flats 19 mm



#### LPMF28

Thread M10 $\times$ 1 port Flats 17 mm





## **CLIP MOUNT** M10×1.25

#### LPMF09-M10X125

Thread  $M10 \times 1.25 \text{ port}$ Hex 17 mm



## **CLIP MOUNT** M12×1

#### LPMF10

Thread  $M12 \times 1$  port Hex 19 mm



#### LPMF47Z

Thread M12×1 port
Seat type drill-point
Hex 5/8"

Overall length 52.1 mm

Standard HFMF47



## IMPERIAL MALE

### **JIC MALE** 3/8-24 UNF

#### **LPIM28-6**

Thread 3/8-24 UNF stud Dash size -03 JIC 7/16" Hex Overall length 44.4 mm

Standard HFIM28

## **JIC MALE** 7/16-20 UNF

#### **LPIM29-7**

Thread 7/16-20 UNF stud Dash size -04 JIC

Hex 1/2" 47.2 mm Overall length

Standard HFIM29

## **BULKHEAD MOUNT** 3/8-24 UNF

#### **LPIM02-6**

Thread 3/8-24 UNF stud Stud length 24 mm Hex 16mm 56.2 mm Overall length

Standard HFIM02 LP stainless LPIM02-6SS

## **STANDARD MOUNT** 3/8-24 UNF

#### **LPIM01-6**

Thread 3/8-24 UNF stud Stud length 12.5 mm Hex 16mm 43.7 mm Overall length

Standard HFIM01 Brass HFIM01B HFIM01SS Stainless

## STANDARD 7/16-20 UNF

#### **LPIM03-7**

Thread 7/16-20 UNF stud 12<sub>mm</sub> Stud length Hex 16<sub>mm</sub>

Overall length 44.2 mm

Standard HFIM03 Stainless HFIM03SS

## STANDARD 7/16-24 UNS

#### LPIM13-7

Thread 7/16-24 UNS stud 12 mm Stud length Hex 5/8" 44.2 mm Overall length

Standard HFIM13

## **STANDARD** NPT

#### LPIM19

Thread 1/8-27 NPT stud Hex 14 mm

Overall length

Standard HFIM19 Stainless HFIM19SS



## **METRIC MALE**

## **BULKHEAD MOUNT** M10×1

#### LPMM02-M10X1

 $\begin{array}{lll} \textbf{Thread} & \texttt{M10} \times \texttt{1} \; \text{stud} \\ \textbf{Stud length} & \texttt{23} \, \text{mm} \\ \textbf{Hex} & \texttt{15} \, \text{mm} \\ \textbf{Overall length} & \texttt{55.2} \, \text{mm} \end{array}$ 

Standard HFMM02



## **STANDARD MOUNT** M10×1

#### LPMM01-M10X1

Thread  $M10 \times 1$  stud Stud length 17 mmHex 16 mmOverall length 49.2 mm

Standard HFMM01



#### LPMM03-M10X1

Thread M10×1 stud
Stud length 14 mm
Hex 14 mm
Overall length 46.2 mm

Standard HFMM03 LP zinc-nickel LPMM03-M10X1Z



Thread M10×1 stud
Stud length 13 mm
Hex 16 mm
Overall length 45.2 mm

Standard HFMM06 Stainless HFMM06SS



#### LPMM22Z

Thread M10×1 stud
Stud length 33 mm
Hex 14 mm
Overall length 66.4 mm

Standard HFMM22



## **STANDARD MOUNT** M10×1.25

#### LPMM04-M10X125

Thread M10×1.25 stud
Stud length 13 mm
Hex 16 mm
Overall length 45.2 mm

Standard HFMM04



## **CENTER SUPPORT**

## **BRACKET MOUNT**

#### LPC05

Mount hole8.5 mmWidth20 mmOverall length29 mm

Standard HFC05



## **CLIP MOUNT**

Not all clip mount fittings include an e-clip. Refer to each fitting's image to see if a clip is included.

#### LPC01

Width 17 mm Hex 17 mm Overall length 33 mm

Standard HFC01



#### LPC06

Width 17 mm Flats 17 mm Overall length 34 mm

Standard HFC06



#### LPC07

Width 19 mm Flats 19 mm Overall length 36 mm

Standard HFC07



#### LPC09

 $\begin{array}{ll} \mbox{Width} & 17\,\mbox{mm} \\ \mbox{Flats} & 17\,\mbox{mm} \\ \mbox{Overall length} & 34\,\mbox{mm} \end{array}$ 

Standard HFC09



#### LPC<sub>12</sub>

Width 17 mm Flats 17 mm Overall length 36 mm



#### LPC17

Width16 mmFlats16 mmOverall length37 mm

Standard HFC17



#### **LPC301**

Width 20 mm Overall length 33 mm

Standard HFC301A LP zinc-nickel LPC301Z



#### **LPC331**

Width20 mmFlats17 mmOverall length35 mm

Standard HFC331



/// E-clips, BQ12, are on page 19.

# POWER STEERING

#### Hose

High-pressure Hose 124 Low-pressure Hose 124

#### Accessories

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Bump Tube Adapters 125
Braze-on Fittings 125

#### **Fittings**

Banjo 126 Female Swivel 126 Male Swivel 127 Metric Female 128 Metric Male 128 Center Support 129 Universal 129 Braze-on Lifesaver 129 Compression 129

## **HOSE**

## **HIGH PRESSURE**

High Pressure Power Steering Hose, Rubber PS330

Carriers 24 Wires per Carrier 4

Hose Wall 0.067" / 1.7 mm

Operating Pressure 1,650 psi

Burst Pressure 7,800 psi

Bend Radius 3.2" / 81.3 mm

Temperature Range -40°F to 300°F / -40°C to 149°C



Compatible with petroleum based power steering and transmission oils.

## **LOW PRESSURE**

Low Pressure Power Steering Hose, Rubber PS331

Carriers 24 Wires per Carrier 2

Hose Wall 0.06" / 1.5 mm
Operating Pressure 300 psi
Burst Pressure 1,200 psi
Bend Radius 3.0" / 76.2 mm

Temperature Range -40°F to 300°F / -40°C to 149°C

Hose I.D.

3/8"
9.5 mm

Hose O.D.

21/32"
16.6 mm

Compatible with petroleum based oils.

## **ACCESSORIES**

## RESTRICTOR TUBE

#### **BQ801**

The restrictor tube will reduce noise by floating in the hose and restricting flow. If using, install before crimping the end fitting.





## **ADAPTERS** BUMP TUBE

These adapters are for power steering and fuel systems.

Male to O-ring Pilot

O-ring pilot includes a high-temperature Viton O-ring.

Stud Thread	O-ring Pilot Thread	Hex	Overall Length	Part Number	
1/2-20 UNF (-05 JIC)	1/2-20 UNF	9/16"	37.4 mm	5MBT-5MJ	
9/16-18 UNF (-06 JIC)	11/16-18 UNS	3/4"	41.9mm	7MBT-6MJ	
9/16-18 UNF (-06 JIC)	M14×1.5	5/8"	38.8 mm	14MMBT-6MJ	
9/16-18 UNF (-06 JIC)	M16×1.5	17mm	38.9 mm	16MMBT-6MJ	
9/16-18 UNF (-06 JIC)	M18×1.5	3/4"	39.4 mm	18MMBT-6MJ	



Male to O-ring Boss

O-ring boss includes a PTFE crush ring.

Stud Thread	O-ring Boss Thread	Hex	Overall Length	Part Number
9/16-18 UNF (-06 JIC)	M16×1.5 (Ford type III)	18 mm	32.1 mm	16MMORB-6MJ



Female to O-ring Pilot O-ring pilot includes a high-temperature Viton O-ring.

Port Thread	O-ring Pilot Thread	Hex	Overall Length	Part Number
5/8-18 UNF	M16×1.5	3/4"	30.8 mm	16MMBT-6FI



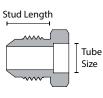
/// Bump Tube Adapter Assortment Kit, BQ7003, is on page 157.

## **ADAPTERS** BRAZE-ON FITTINGS

-06 JIC

Thread	Type	Tube Size	Stud Length	Hex	Material	Part Number
9/16-18 UNF	-06 JIC	3/8"	14.1 mm	5/8"	Aluminum	BQ170
9/16-18 UNF	-06 JIC	3/8"	14.1 mm	5/8"	Steel	BQ226
9/16-18 UNF	-06 JIC	1/2"	14.1 mm	11/16"	Steel	BQ228
9/16-18 UNF	-06 JIC	10 mm	14.1 mm	5/8"	Steel	BQ227





/// For a full list of BrakeQuip's Braze-On Fittings, see page 146.

### **BANJO**

#### PSHFB130

Hole size 14 mm
Thickness 17.3 mm
Width 30 mm
Overall length 56.3 mm



#### PSHFB132

Hole size 14 mm
Thickness 17.3 mm
Width 30 mm
Bend 45°
Tube size 12 mm
Overall length 92.9 mm



#### PSHFB133

Hole size 14 mm
Thickness 14 mm
Width 24 mm
Tube size 10 mm
Overall length 86.8 mm



#### PSHFB134

Hole size 14 mm
Thickness 14 mm
Width 24 mm
Bend 20°
Tube size 10 mm
Overall length 106 mm



#### PSHFB135

Hole size 14mm
Thickness 14mm
Width 24mm
Tube size 10mm
Overall length 104mm



## **FEMALE SWIVEL** 5/8-18 UNF

#### **PSHF116**

Thread 5/8-18 UNF Flare 45° double Angle straight Hex 7/8"

Overall length 57 mm



#### **PSHF117**

Thread 5/8-18 UNF Flare 45° double Bend 45° Hex 13/16" Tube size 3/8" Overall length 95 mm



#### **PSHF115**

Thread 5/8-18 UNF
Flare 45° double
Bend 90°
Hex 13/16"
Tube size 3/8"
Overall length 80 mm



CONTINUED

## FEMALE SWIVEL 9/16-18 UNF

#### **PSHF106**

Thread 9/16-18 UNF
Seat type 37° drill-point
Angle straight
Overall length 57 mm





## PSHF142

Thread 9/16-18 UNF Flare 37° single Bend 45° Hex 11/16" Tube size 3/8" Overall length 94 mm



#### PSHF114

Thread 9/16-18 UNF Flare 37° double Bend 90° Hex 11/16" Tube size 3/8" Overall length 80 mm



## MALE SWIVEL 7/16-24 UNS

#### **PSHF118**

Thread 7/16-24 UNS
Flare 45° double
Bend straight
Tube size 1/4"
Overall length 70 mm



#### **PSHF121**

Thread 7/16-24 UNS
Flare 45° double
Bend 45°
Tube size 3/8"
Overall length 77 mm



#### PSHF124

Thread 7/16-24 UNS
Flare 45° double
Bend 90°
Tube size 3/8"
Overall length 66 mm



## MALE SWIVEL 1/2-20 UNF

#### **PSHF119**

Thread 1/2-20 UNF Flare 45° double Bend straight Tube size 5/16"

Overall length 70 mm



#### PSHF122

Thread 1/2-20 UNF Flare 45° double Bend 45° Tube size 1/4"
Overall length 81 mm



#### CONTINUED

#### **PSHF125**

Overall length

Thread 1/2-20 UNF Flare 45° double Bend 90° Tube size 3/8"

75 mm



## MALE SWIVEL 5/8-18 UNF

#### **PSHF120**

Thread 5/8-18 UNF Flare 45° double Bend straight Tube size 3/8"

Overall length 73 mm



#### **PSHF126**

Thread 5/8-18 UNF Flare 45° double Bend 90°
Tube size 1/4"
Overall length 80 mm



#### **PSHF123**

Thread 5/8-18 UNF Flare 45° double Bend 45° Tube size 3/8"

Overall length 86 mm



## MALE SWIVEL M16×1.5

#### **PSHF146**

 $\begin{array}{lll} \textbf{Thread} & \texttt{M16} \times \texttt{1.5} \\ \textbf{Flare} & \texttt{45}^{\circ} \ \, \textbf{double} \\ \textbf{Bend} & \texttt{90}^{\circ} \\ \textbf{Tube size} & \texttt{3/8}^{"} \\ \textbf{Overall length} & \texttt{68.6} \, \text{mm} \end{array}$ 



## **METRIC FEMALE**

#### **PSHF108**

Thread  $M14 \times 1.5$ Seat type inverted Angle straight Hex  $19 \, mm$   $47 \, mm$ 



## **METRIC MALE**

#### PSHFMM131

Thread M16×1.5
Stud length 31.5 mm
Hex 19 mm
Overall length 70 mm



**CONTINUED** 

## **CENTER SUPPORT**

#### **PSHF100**

Overall length 27 mm



## **UNIVERSAL**

#### **PSHF133**

Tube size 3
Overall length 5



## **BRAZE-ON LIFESAVER**

#### **PSHF101**

 Tube size
 3/8"

 Hex
 5/8"

 Overall length
 44 mm



#### **PSHF102**

Tube size 10 mm Hex 5/8" Overall length 44 mm



#### **PSHF105**

Tube size 1/4"
Hex 5/8"
Overall length 47 mm



#### **PSHF107**

Tube size 5/16" Hex 5/8" Overall length 44 mm



#### **PSHF109**

Tube size 1/4" Hex 5/8" Overall length 35 mm



#### **PSHF111**

Tube size 12 mm Hex 16 mm Overall length 44 mm



## **COMPRESSION**

#### **PSHF103**

 Tube size
 3/8"

 Hex
 5/8"

 Overall length
 65 mm



#### **PSHF104**

Tube size 10 mm Hex 16 mm Overall length 65 mm



#### PSHF112

Tube size 5/16" Hex 5/8" Overall length 50 mm



# FUEL

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## **FUEL CONNECTORS**

## **QUICK CONNECTS**

Thumb-release convenience with no special tools required.

## Straight

Female	Male	Part Number
1/4"	5/16"	FL08-4-5
5/16"	5/16"	FL08-5-5
5/16"	3/8"	FL08-5-6
3/8"	5/16"	FL08-6-5
3/8"	3/8"	FL08-6-6

#### 90°

Female	Male	Part Number
5/16"	5/16"	FL09-5-5
5/16"	3/8"	FL09-5-6
3/8"	5/16"	FL09-6-5
3/8"	3/8"	FL09-6-6



## **QUICK CONNECT TUBES**

Descri	ntion
Descii	puon

1/4" quick connect to 8 mm FuelFlex - straight
5/16" quick connect to 8 mm FuelFlex - straight
3/8" quick connect to 3/8" quick connect - straight
3/8" quick connect to 10 mm FuelFlex - straight

#### Part Number

FL05-4 FL03-5 FL04-6 FL03-6



## **FUELFLEX CONNECTORS**

#### Description

8 mm FuelFlex to 8 mm FuelFlex - 90°
10 mm FuelFlex to 10 mm FuelFlex - 90°

#### Part Number

FL20-5 FL20-6



## **FUELFLEX REDUCERS**

#### Description

8 mm FuelFlex to 1/4" FuelFlex 10 mm FuelFlex to 8 mm FuelFlex

#### Part Number

FL06-5-4 FL06-6-5



## **FUELFLEX TO RUBBER HOSE**

#### Description

8 mm FuelFlex to 5/16" rubber hose 10 mm FuelFlex to 3/8" rubber hose

#### Part Number

FL02-5 FL02-6



## FUEL CONNECTORS CONTINUED

## **THREAD CONNECTORS**

## Straight

Tube End	End Form	Thread	Length	Part Number
5/16" rubber hose	bump	M14×1.5	230 mm	FL07-5
3/8" rubber hose	bump	M16×1.5	230 mm	FL07-6
8 mm FuelFlex	double flare	M14×1.5	90 mm	FL12-14MM
8 mm FuelFlex	bump	M14×1.5	155 mm	FL13-5
8 mm FuelFlex	bump	M14×1.5	100 mm	FL14-5
10 mm FuelFlex	bump	M16×1.5	155 mm	FL13-6
10 mm FuelFlex	bump	M16×1.5	100 mm	FL14-6



#### Bent

Tube End	End Form	Thread	Bend	Part Number
8 mm FuelFlex	double flare	M14×1.5	30°	FL11-14MM
10 mm FuelFlex	bump	M16×1.5	180°	FL15



## **FUEL FITTINGS**

## **FUELFLEX UNIONS**

Size Part Number
8 mm FL01-5
10 mm FL01-6



## **MALE-FEMALE ADAPTERS**

Male	Female	Seat	Part Number
8mm FuelFlex	M14×1.5	bump	FL10-5S steel
10mm FuelFlex	M16×1.5	bump	FL10-6S steel
8mm FuelFlex	M14×15	inverted	FI 10-14MM bras



## **BUMP TUBE NUTS**

Size Part Number

M16 × 1.5 - 3/8" BQ9148

M14 × 1.5 - 5/16" BQ9149



## **COMPRESSION FITTINGS**

Description	Part Number
8 mm FuelFlex — 5/16" metal tube	FL36 brass
8 mm FuelFlex — 8 mm FuelFlex	FL37 brass
10 mm FuelFlex — 3/8" metal tube	FL38 brass
10 mm FuelFlex — 10 mm FuelFlex	FL39 brass

## **FUEL ACCESSORIES**

## **FUELFLEX TUBING**

Size 8 mm (5/16") 10 mm (3/8")

Coil Length Part Number 25 ft

25 ft

T8-FF T10-FF



## **SPRING MANDRELS**

Size 8 mm (5/16") 10 mm (3/8")

Part Number BQ318 BQ319



## **FUEL PRESSURE REPAIR KIT**

Size 8 mm (5/16") 10 mm (3/8")

FL21



## **TUBE SUPPORT CLAMPS**

Size 8 mm (5/16")

10 mm (3/8")

Part Number FL35 FL34



## **360° TUBE CLAMPS**

Size

Part Number

8 mm (5/16") FL25 10 mm (3/8") FL26



## 360° TUBE CLAMP PLIERS

**BQ412** 



## **TUBE CUTTER**

**BQ-01** 



## **HEAT SHIELD**

**BQ313-SV** 

Available in 5ft sections.

Maximum OD is 1/2".



## **FUEL LINE KIT**



Part Number	Qty	Part Number	Qty	Part Number	Qty
TUBING		FUELFLEX REDUCERS		COMPRESSION FITTINGS	
T8-FF	25 ft	FL06-6-5	2	FL36	2
T10-FF	25 ft	FUELFLEX ADAPTERS		FL37	2
QUICK CONNECTS		FL02-5	2	FL38	2
FL08-4-5	2	FL02-6	2	FL39	2
FL08-5-5	2	THEADED CONNECTORS		BUMP TUBE NUTS	
FL08-5-6	2	FL07-5	2	BQ9148	4
FL08-6-5	2	FL07-6	2	BQ9149	4
FL08-6-6	2	FL11-14MM	2	SCREWS AND CLAMPS	
FL09-5-5	2	FL12-14MM	2	BQ811	20
FL09-5-6	2	FL13-5	2	FL25	20
FL09-6-5	2	FL13-6	2	FL26	20
FL09-6-6	2	FL14-5	2	FL34	20
QUICK CONNECTOR TUBES		FL14-6	2	FL35	20
FL03-5	2	FL15	1	T00LS	
FL03-6	2	FUELFLEX UNIONS		BQ318	1
FL04-6	2	FL01-5	2	BQ319	1
FL05-4	2	FL01-6	2	BQ-01	1
FUELFLEX CONNECTORS		MALE-FEMALE ADAPTERS		BQ412	1
FL20-5	2	FL10-5S	1	TUBE PROTECTION	
FL20-6	2	FL10-6S	1	BQ313-SV	5ft
		FL10-14MM	1		

# TUBING & HARDWARE

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## **COPPER-NICKEL**



For the ultimate combination of corrosion resistance and ease of use, choose EziBend 2 cunifer tubing. EziBend meets SAE J1650, copper-nickel material standards, and is specially alloyed for automotive use.

## TOUGH ON CORROSION

Unlike other similarly-priced tubing that attempts to protect rust-prone steel with plating or coating, EziBend tubing is rust and corrosion proof. It will remain protected after tube formation.

## **EASY ON TOOLS**

EziBend's composition is inherently ductile, making it strong yet easy to work with. The same properties that make EziBend simple to shape allow it to achieve a superior sealing surface against fittings.

## **EZIBEND 2**

Outer Diameter	Coil Length	Part Number
3/16"	25 ft	T187-25SE
3/16"	100 ft	T187-100SE
1/4"	25 ft	T250-25SE
1/4"	100 ft	T250-100SE
5/16"	25 ft	T312-25SE
3/8"	25 ft	T375-25SE



Call about branding.

## STAINLESS STEEL

Renowned for its ease of use and stunning appearance, 316L stainless is the top choice of premiere automotive builders.

## MARINE-GRADE 316L

Marine-grade stainless steel tubing has a high-level of corrosion protection. 316L contains molybdenum, a corrosion resistor that is not found in 304 stainless.

## IDEAL FOR BUILDERS

Our .028" wall thickness and annealing process make it the builder's choice for stainless installations. Straightening, cutting, bending, and flaring is easier than with non-annealed stainless.



## **316L STAINLESS STEEL**

Outer Diameter	Coil Length	Part Number
3/16"	25 ft	T187-25SS
3/16"	100 ft	T187-100SS
1/4"	25 ft	T250-25SS
1/4"	100 ft	T250-100SS
5/16"	25 ft	T312-25SS
5/16"	25 ft	T312-25SS
3/8"	25 ft	T375-25SS



316L Stainless Steel, 5/16" T312-25SS

## TOTAL CUSTOMIZATION

BrakeQuip can customize OD, wall thickness, or coil length for large volume special orders.

For more information, contact sales@brakequip.com.

## **HOSE & PROTECTORS**

## HOSE

#### Remote Reservoir Hose

Available in 10ft sections.

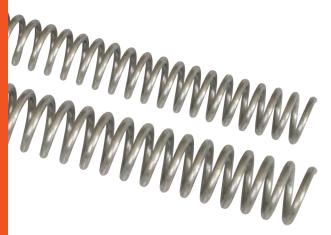


Inner Diameter	Outer Diameter	Part Number
1/4"	7/16"	BQ320
5/16"	1/2"	BQ321
3/8"	9/16"	BQ322

1/4" Remote Reservoir Hose BQ320

## **TUBE PROTECTORS**

Spring Guard



Inner Diameter	Length	Material	Part Number
3/16"	3ft	Stainless steel	BQ231
1/4"	3ft	Stainless steel	BQ232

Spring Guards BQ231, BQ232

## **STRAIGHTENERS**

## Professional Tube Straightener

#### **BQ1028**

Complete a professional tube installation by forming coiled tube into straight sections of any length. Adjust the wheels to the tube size and pull the tube through the tool to straighten.

- For 3/16" 1/2" light-walled, annealed tube
- Non-marking delrin wheels
- 5-point precision and fine-threaded adjustment
- Vice mount or bolt straight to the workbench







### Brake Tube Straightener

#### **BQ1030**

Designed for the automotive DIY-er. Straightens coils with common brake line sizes.

- Straighten 3/16" 1/4" annealed tubing
- U-shaped rollers straighten both tubing sizes
- Hard polymer rollers leave a smooth finish on tubing
- Smooth ball bearing action
- Bench-mount ready
- Optional vise-mount base (BQ1030-MB)

Vice-mount base BQ1030-MB



### **Tube-Straightening Pliers**

#### **BQ405**

Remove imperfections or fix mistakes with these pliers.

- Straightens incorrect bends in 3/16" and 1/4" tube
- Makes tight-radius bends, up to 90°, for both 3/16" and 1/4" tube
- The flat side of the mandrel provides a guide surface for cutting



CONTINUED

## **BENDERS**

#### **Brake Tube Pliers**

#### **BQ402**

For use on 3/16" and 1/4" brake tube, these pliers are perfect for working in constrained areas under a vehicle.

- Align the tube and nut with the port during installation
- Put a tight 90° bend behind a tube nut (such as a master cylinder drop)



One side of the tool end is flat to facilitate cutting.



#### **BQ406**

For use on 3/16" and 1/4" brake tube, this bender is easy to use and yields professional results. Bend on the vehicle or mount the tool in a vise for precision mass production.

- Bends in a tight radius, up to 180°
- Low-friction rollers make for easy precision work
- Smooth roller channels provide a clean, scratch-free finish
- Handles separate for quick and easy tube removal





#### CONTINUED

## **FLARING TOOLS**

These flaring tools are designed to be used in a bench vise or with our table flange mount (BQ350-1).

- Smooth channel dies minimize tube scarring and deformation for a show-quality finish.
- The cam-and-lever design, combined with ball detent turrets, provide fast and easy single, double, bubble, and DIN flares.
- Replacement components are available.



Mounting Flange

BQ350-1







### "A" Series

45° flares	3/16", 1/4", 5/16", 3/8" 4.75mm, 6mm, 8mm, 10mm
37° flares	3/16", 1/4", 5/16", 3/8", 1/2"
DIN flares	3/16", 1/4"

Part Number BQ350A

"A" Series Features:

- Die-cast steel body
- Extra-long handle
- Tube-setting tab
- Die-clamp bolt
- Mounting flange



### Standard Series

2
5/16" 2"

37° Turret and Dies for BrakeQuip flaring tool

BQ352-BQ



37° Turret and Dies for Sykes Pickavant 270

BQ352-SP



CONTINUED

## **CUTTERS**

These tube cutters have a heavy-duty wheel to cut 3/16" to 5/8" stainless steel or other light-walled tubing.

#### Professional Tube Cutter





#### Mini Tube Cutter

**BQ601** 



## **LINE STOPPERS**

Line Stopper Kits prevent leaks and contamination during service.

## 4-Piece Stopper Kit

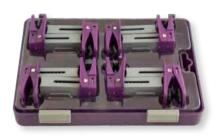
#### **BQ407**

The 5/16" stopper in the 4-Piece Stopper Kit is also suitable for 3/16" and 1/4" lines.



## 8-Piece Stopper Kit

#### **BQ408**



BQ408 comes in slide-lock clamshell case.



Stopper Size	4-Piece Qty	8-Piece Qty
3/16"-1/4"	_	2
5/16"	1	2
3/8"	1	1
1/2"	1	1
Banjo	1	2

## **TOOL KITS**

#### Thread Identification Kit

#### **BQ2100**

The Thread Identification Kit has gauges for the vast majority of brake plumbing threads, both male and female. Gauges are color-coded for fast selection. The threads are hardened for long life. The gauges can also be used to block-off fluid ports during service.

Imperial Sizes	Metric Sizes
3/8-20 BSF	M9 × 1
3/8-24 UNF	M10 × 1
7/16-20 UNF	$M10 \times 1.25$
7/16-24 UNS	$M10 \times 1.5$
1/2-20 UNF	M11 × 1.25
9/16-18 UNF	M12 × 1
9/16-20 UNS	$M12 \times 1.25$
	$M12 \times 1.5$
	$M14 \times 1.5$



### Bleeder Buster Kit

#### **BQ2200**

Use this kit to remove and replace frozen bleeder screws.
All kit components are available individually as replacement parts.





## Kit includes:

Part Number	Qty
BQ2200-1	1
BQ2200W	1
BQ315	10
BQ316	10
BQ4433	4
BQ4434	4
BQ4435	4
BQ4438	4
BQ4439	4
BQ4440	4
BQ4441	4
BQ4442	4
BQ4443	4
BQ4444	4
BQ4445	4
BQ4446	4



/// Full list of bleed screws and caps are on page 156.

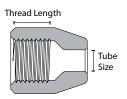
## **HARDWARE**

## **TUBE NUTS**

## Female Imperial

Thread	Tube Size	Thread Length	Seat	Hex	Part Number
3/8-24 UNF	3/16"	7.5 mm	37°	7/16"	BQ55
3/8-24 UNF	3/16"	5.6mm	45°	7/16"	BQ9176
7/16-20 UNF	1/4"	5.8 mm	37°	9/16"	BQ57
1/2-20 UNF	5/16"	10 mm	45°	5/8"	BQ9177
9/16-18 UNF	3/8"	7.5 mm	37°	11/16"	BQ9201
9/16-18 UNF	3/8"	8.6mm	45°	11/16"	BQ9239
9/16-18 UNF	3/8"	6.1 mm	o-ring pilot	5/8"	BQ9207
5/8-18 UNF	3/8"	8.6mm	45°	13/16"	BQ9219



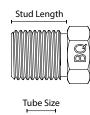


## Male Imperial

Thread	Tube Size	Stud Length	Flare	Hex	Part Number
3/8-20 BSF	3/16"	14 mm	45°	3/8"	BQ4276
3/8-24 UNF	3/16"	9.1 mm	45°	3/8"	BQ5555
3/8-24 UNF	3/16"	9.1 mm	45°	3/8"	BQ5555B brass
3/8-24 UNF	3/16"	9.1 mm	45°	3/8"	BQ5555SS stainless
3/8-24 UNF	3/16"	17 mm	45°	3/8"	BQ4285
7/16-20 UNF	3/16"	17.5 mm	45°	11 mm	BQ6118
7/16-20 UNF	1/4"	18 mm	45°	7/16"	BQ4277
7/16-24 UNS	3/16"	9.1 mm	45°	11 mm	BQ5842
7/16-24 UNS	3/16"	9.1 mm	45°	11 mm	BQ5842SS stainless
7/16-24 UNS	1/4"	12.5 mm	45°	7/16"	BQ2577
7/16-24 UNS	1/4"	12.5 mm	45°	7/16"	BQ2577SS stainless
1/2-20 UNF	3/16"	10.2mm	45°	1/2"	BQ9184
1/2-20 UNF	1/4"	14 mm	45°	1/2"	BQ9187
1/2-20 UNF	5/16"	10.2mm	45°	1/2"	BQ2578
9/16-18 UNF	3/16"	14 mm	45°	9/16"	BQ9185
9/16-18 UNF	1/4"	14 mm	45°	9/16"	BQ9186
5/8-18 UNF	3/8"	10.2mm	45°	5/8"	BQ9181









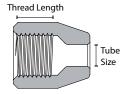
/// Copper Seat Seal (Flare Gasket) is on page 154. /// Imperial Tube Nuts Assortment Kit, BQ7006, is on page 158.

CONTINUED

### Female Metric

Thread	Tube Size	Thread Length	Seat	Hex	Part Number
M10×1	3/16"	9mm	45°	13mm	BQ9175
M12×1	3/16"	9mm	45°	16mm	BQ9174
M12×1	1/4"	9mm	45°	16mm	BQ9179
M12×1.25	1/4"	8 mm	45°	16mm	BQ9156
M12×1.5	1/4"	9mm	45°	16mm	BQ9178
M14×1.5	10 mm	10.9 mm	37°	17 mm	BQ9208
M16×1.5	10 mm	10.9 mm	37°	19 mm	BQ9209
M16×1.5	3/8"	11 mm	45°	19mm	BQ9226
M18×1.5	12 mm	14.4 mm	37°	21 mm	BQ9210





### Male Metric

Thread	Tube Size	Stud Length	Flare	Hex	Part Number	
M9×1	3/16"	14 mm	45°	10mm	BQ4510	
M10×1	3/16"	11.6 mm	45°	11 mm	BQ4511	
M10×1	3/16"	11.6 mm	45°	11 mm	BQ4511SS stainless	
M10×1	3/16"	14 mm	45°	11 mm	BQ4511LT long thread	THE STREET
M10×1	3/16"	12.6 mm	DIN	11 mm	BQ72	
M10×1.25	3/16"	11.6 mm	45°	11 mm	BQ4512	
$M10 \times 1.5$	3/16"	11.6 mm	45°	11 mm	BQ9188	wilding.
M11×1	3/16"	15 mm	45°	11 mm	BQ9189	
M11×1.25	3/16"	15 mm	45°	11 mm	BQ9190	
$M11 \times 1.5$	3/16"	13.1 mm	45°	13 mm	BQ9191	
M12×1	3/16"	11.6 mm	45°	13 mm	BQ9180	
M12×1	1/4"	11.6 mm	45°	13 mm	BQ4513	
M12×1	1/4"	11.6 mm	45°	12mm	BQ4513SS stainless	
M12×1	1/4"	14.6 mm	45°	13 mm	BQ4513LT long thread	Stud Length
M12×1	1/4"	14.9 mm	DIN	13 mm	BQ9169	
M12×1.25	3/16"	11.6 mm	45°	13 mm	BQ9192	( S
M12×1.25	1/4"	11.6 mm	45°	13 mm	BQ9157	
M12×1.5	3/16"	11.6 mm	45°	13 mm	BQ9193	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
M12×1.5	1/4"	11.6 mm	45°	13 mm	BQ9182	Tube Size
M13×1	3/16"	15 mm	45°	13 mm	BQ9194	Tube Size
M13×1.25	3/16"	15 mm	45°	13 mm	BQ9195	
M13×1.5	3/16"	15 mm	45°	13 mm	BQ9196	
$M14 \times 1.5$	1/4"	11.6 mm	45°	15mm	BQ9183	Hex
$M14 \times 1.5$	5/16"	11.6 mm	45°	15mm	BQ9197	V TIEX
$M14 \times 1.5$	5/16"	15 mm	DIN	16mm	BQ9149	
M16×1.5	5/16"	11.6 mm	45°	17mm	BQ9198	
M16×1.5	3/8"	16 mm	45°	17mm	BQ9166	
M16×1.5	10 mm	13.2 mm	DIN	16mm	BQ9148	
M18×1.5	5/16"	16 mm	45°	18mm	BQ9199	

/// Metric Tube Nuts Assortment Kit, BQ7005, is on page 158.

CONTINUED

### **ELBOWS**

### 90° Swivel Elbow

#### **BQ141**

Port thread 3/8-24 UNF, inverted Tube nut 3/8-24 UNF

Zinc-nickel BQ141Z

BQ141 is useful in tight spots that require an inverted seat connection.



### JIC Elbow

#### **BQ252**

Port thread 3/8-24 UNF, inverted Stud thread 3/8-24 UNF

Dash size -03 JIC

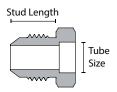


# **BRAZE-ON FITTINGS**

### Aluminum

Thread	Tube Size	Stud Length	Туре	Hex	Part Number
9/16-18 UNF	3/8"	14.1 mm	-06 JIC	5/8"	BQ170
5/8-18 UNF	3/8"	15.7 mm	45°	11/16"	BQ171
3/4-16 UNF	1/2"	16.7 mm	-08 JIC	13/16"	BQ172
7/8-14 UNF	5/8"	22.6 mm	-10 JIC	15/16"	BQ173
1 1/16-14 UNS	3/4"	25.4 mm	45°	1 1/16"	BQ174





#### Steel

Thread	Tube Size	Stud Length	Type	Hex	Part Number
3/8-24 UNF	3/16"	12.2mm	-03 JIC	7/16"	BQ153
9/16-18 UNF	3/8"	14.1 mm	-06 JIC	5/8"	BQ226
9/16-18 UNF	1/2"	14.1 mm	-06 JIC	11/16"	BQ228
9/16-18 UNF	10 mm	14.1 mm	-06 JIC	5/8"	BQ227



# PRE-FLUXED BRAZING RODS

### Silver

#### **BQ33**

For professional brazing of steel, stainless, brass, or any combination of these metals. Designed for brazing high-pressure fittings. No cadmium. 18" long.



### Aluminum

#### **BQ34**

For brazing aluminum. 18" long.



CONTINUED

# **FEMALE UNIONS**

### **Imperial**

Thread	Seat	Hex	Overall Length	Part Number
3/8-24 UNF	45°	1/2"	22.2mm	BQ110
3/8-24 UNF	45°	1/2"	22.2 mm	BQ110B brass
3/8-24 UNF	bubble	1/2"	25 mm	BQ115
7/16-24 UNS	45°	9/16"	22.2 mm	BQ111
7/16-24 UNS	45°	9/16"	22.2 mm	BQ111SS stainless
1/2-20 UNF	45°	5/8"	25 mm	BQ112
9/16-18 UNF	45°	3/4"	27 mm	BQ119
5/8-18 UNF	45°	3/4"	27 mm	BQ113





### Metric

Thread	Seat	Hex	Overall Length	Part Number
M10×1	45°	13 mm	24 mm	BQ117
M10×1	DIN	13 mm	25 mm	BQ114
M12×1	45°	16 mm	25 mm	BQ116
M12×1	DIN	16 mm	27 mm	BQ147





### **Bulkhead Union**

### **BQ148**

Thread 7/16-24 UNS (2)
Seat type 45° inverted
Mount thread 5/8-18 UNF
Hex 19 mm

Secure with BQ13 bulkhead nut.



/// Female Unions Assortment Kit, BQ7009, is on page 158.

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# **Tandem Trailer Fittings**

#### **BQ4700B**

Thread 3/8-24 UNF (4) Seat type inverted



**BQ4705B** 

Threads 3/8-24 UNF ports (2)

3/8-24 UNF stud

Seat type inverted



brass

Block off excess ports with BQ503 plug.

Block off excess ports with BQ503 plug.

CONTINUED

# **MALE UNIONS**

#### **BQ195**

Thread 3/8-24 UNF studs (2)

Seat type inverted Hex 1/2"
Stud length 16 mm
Overall length 44 mm



#### **BQ292**

Stainless

Thread 3/8-24 UNF studs (2)

Dash size -03 JIC Hex 7/16" Stud length 12.2mm Overall length 30.7 mm

7/16"

th 12.2 mm

ngth 30.7 mm

**BQ292SS** 

#### **BQ293SS**

Thread 3/8-24 UNF studs (2)

Dash size-03 JICHex7/16"Stud length12.2mmOverall length45.9mm



Use with BQ78 nut.

# **BULKHEAD NUTS**

# Imperial

Thread	Hex Size	Thickness	Part Number
3/8-24 UNF	1/2"	5 mm	BQ78
7/16-20 UNF	5/8"	6mm	BQ80
1/2-20 UNF	3/4"	6mm	BQ83
5/8-18 UNF	15/16"	8 mm	BQ13
11/16-18 UNS	1"	8 mm	BQ77
3/4-16 UNF	1 1/16"	8 mm	BQ84
7/8-14 UNF	1 1/8"	8 mm	BQ75
7/8-18 UNS	1 1/8"	8 mm	BQ89



Thread	Hex Size	Thickness	Part Number
M10×1	13 mm	5 mm	BQ79
M12×1	19 mm	6mm	BQ81
M12×1.5	19 mm	6mm	BQ82
M16×1.5	22 mm	7 mm	BQ87
M18×1.5	25 mm	8 mm	BQ86
M20×1.5	27 mm	8 mm	BQ85



CONTINUED

# **TEES**

### Female Imperial

Thread	Seat	Diameter	Mount	Mount Hole	Thickness	Part Number
1/8-27 NPT	NPT	31.75 mm	Bolt	8.2 mm	14mm	BQ93A
3/8-24 UNF	45°	T-shape	none	none	1/2"	BQ264
3/8-24 UNF	45°	31.75 mm	Bolt	8.2mm	1/2"	BQ90A
3/8-24 UNF	45°	28.6 mm	Bolt	8.2mm	1/2"	BQ56A
3/8-24 UNF	45°	28.6mm	Bolt	8.2mm	1/2"	BQ56AB brass
3/8-24 UNF	45°	28.6mm	Bolt	8.2mm	1/2"	BQ56ASS stainless
7/16-20 UNF	bubble	31.75 mm	Bolt	8.2 mm	14 mm	BQ94A
7/16-24 UNS	45°	31.75 mm	Bolt	8.2mm	14mm	BQ92A





### Female Metric

Thread	Seat	Diameter	Mount	Mount Hole	Thickness	Part Number
M10×1	45°	31.75 mm	Bolt	8.2mm	1/2"	BQ91A
M10×1	DIN	31.75 mm	Bolt	7.2mm	14 mm	BQ95A

## Male Imperial

Thread	Dash Size	Diameter	Mount	Mount Hole	Thickness	Part Number
3/8-24 UNF	-03 JIC	31.75 mm	Bolt	8.2mm	1/2"	BQ360
7/16-20 UNF	-04 JIC	31.75 mm	Bolt	8.2mm	1/2"	BQ361



### Tees with Bracket

#### **BQ7812**

Thread 3/8-24 UNF ports (3)
Seat type inverted
Mount hole size 8.5 mm

Brass BQ7813B



#### **BQ7813B**

Thread 3/8-24 UNF ports (3)
Seat type inverted
Mount hole size 8.8 mm
Steel BQ7812



brass

### Double Bolt Tee

#### **BQ177SS**

Thread 3/8-24 UNF ports (3)
Seat type inverted
Diameter 47 mm
Thickness 1/2"

Mount hole size 8.5 mm



### **NPT Tee**

#### **BQ265**

Threads 3/8-24 UNF ports (2)

1/8-27 NPT port (middle)

Seat type inverted (2)



CONTINUED

# **CLIPS & BRACKETS**

# Universal Clip

**BQ3052** 



# Universal Clip

**BQ3052SS** 



# Clip - Toyota

**BQ3053** 



#### **Universal Brackets**

#### **BQB06**

Hole size 19 mm Mount holes 5 mm



#### **BQB244**

Hole size 17 mm Mount holes 6.8 mm



Bracket Retaining Screws

BQ71

pack of 50



Self-Drilling Screws

BQ811

pack of 20



# **Tube Clamps**

Tube size Part Number

3/16" BQ249 1/4" BQ250 5/16" FL35 3/8" FL34

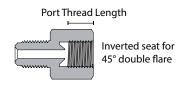


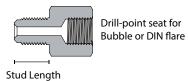
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# **THREAD ADAPTERS**

### Male-Female









When deciding if an adapter will work with a specific port, think of the Stud Fit as a "tube-size equivalent," in that the adapter will seat properly if the corresponding tube and tube nut would also seat properly.

Port Thread	Stud Thread	Port Seat	Tube Size	Stud Length	Stud Fit	Hex	Part Number
1/8-27 NPT	3/8-24 UNF	NPT	-	11.2mm	-	9/16"	BQ247
1/8-27 NPT	1/2-20 UNF	NPT	-	11 mm	-	9/16"	BQ248
1/8-27 NPT	M10×1.5	NPT	-	11 mm	-	9/16"	BQ187
3/8-24 UNF	1/8-27 NPT	45°	3/16"	NPT	3/16"	1/2"	BQ48
3/8-24 UNF	3/8-24 UNF	45°	3/16"	12mm	3/16"	9/16"	BQ156
3/8-24 UNF	7/16-20 UNF	45°	3/16"	12mm	3/16"	9/16"	BQ47
3/8-24 UNF	7/16-24 UNS	45°	3/16"	12mm	3/16"	9/16"	BQ46
3/8-24 UNF	1/2-20 UNF	45°	3/16"	12mm	3/16"	5/8"	BQ9300
3/8-24 UNF	1/2-20 UNF	45°	3/16"	12mm	5/16"	5/8"	BQ120
3/8-24 UNF	9/16-18 UNF	45°	3/16"	12mm	3/16"	11/16"	BQ124
3/8-24 UNF	9/16-18 UNF	Bubble	3/16"	12mm	3/16"	11/16"	BQ262
3/8-24 UNF	9/16-20 UNS	45°	3/16"	12mm	3/16"	11/16"	BQ121
3/8-24 UNF	M10×1	45°	3/16"	12.6 mm	3/16"	9/16"	BQ49
3/8-24 UNF	M10×1	Bubble	3/16"	12mm	3/16"	13 mm	BQ125
3/8-24 UNF	M12×1	45°	3/16"	12mm	3/16"	16mm	BQ383
7/16-24 UNS	3/8-24 UNF	45°	1/4"	11.2 mm	3/16"	9/16"	BQ45
7/16-24 UNS	1/2-20 UNF	45°	1/4"	12mm	3/16"	5/8"	BQ9301
7/16-24 UNS	1/2-20 UNF	45°	1/4"	12mm	5/16"	5/8"	BQ122
7/16-24 UNS	9/16-18 UNF	45°	1/4"	12mm	3/16"	11/16"	BQ123
1/2-20 UNF	3/8-24 UNF	45°	3/16"	12mm	3/16"	11/16"	BQ9304
1/2-20 UNF	3/8-24 UNF	45°	5/16"	11.2 mm	3/16"	16mm	BQ260
1/2-20 UNF	7/16-24 UNS	45°	5/16"	12mm	1/4"	5/8"	BQ127
9/16-18 UNF	3/8-24 UNF	45°	5/16"	11.2 mm	3/16"	11/16"	BQ261
M10×1	3/8-24 UNF	45°	3/16"	11.2 mm	3/16"	1/2"	BQ50
M10×1	M10×1	DIN	3/16"	13 mm	3/16"	16mm	BQ40
M10×1	M10×1.25	45°	3/16"	12mm	3/16"	13 mm	BQ42
M10×1	M12×1	45°	3/16"	12mm	3/16"	16mm	BQ43
M10×1.25	M10×1	45°	3/16"	12.6 mm	3/16"	13 mm	BQ41
M10×1.5	M10×1	45°	3/16"	13 mm	3/16"	15 mm	BQ9305
M11×1.25	3/8-24 UNF	45°	3/16"	11.2mm	3/16"	1/2"	BQ9307
M12×1	1/8-27 NPT	DIN	1/4"	NPT	3/16"	16mm	BQ246
M12×1.5	1/8-27 NPT	45°	3/16"	NPT	3/16"	14 mm	BQ379
M12×1	M10×1	45°	1/4"	12.6 mm	3/16"	16mm	BQ44
M14×1.5	1/8-27 NPT	45°	3/16"	NPT	3/16"	17 mm	BQ380

/// Male-Female Adapters Assortment Kit, BQ7004, is on page 157.

CONTINUED

### Male-Male

JIC Thread	2nd Stud Thread	2nd Stud Length	Hex	Overall Length	Part Number
3/8-24 UNF (-03 JIC)	3/8-24 UNF	16mm	1/2"	34.2 mm	BQ135
3/8-24 UNF (-03 JIC)	1/4-28 UNF	16mm	1/2"	36 mm	BQ132
3/8-24 UNF (-03 JIC)	1/2-20 UNF	13 mm	1/2"	33 mm	BQ168
3/8-24 UNF (-03 JIC)	9/16-18 UNF	15 mm	9/16"	33 mm	BQ197
3/8-24 UNF (-03 JIC)	M10×1	16mm	1/2"	34.2 mm	BQ129
3/8-24 UNF (-03 JIC)	M10×1.25	16mm	1/2"	36 mm	BQ128
3/8-24 UNF (-03 JIC)	M10×1.5	16mm	1/2"	60 mm	BQ130
7/16-20 UNF (-04 JIC)	3/8-24 UNF	16mm	1/2"	37.1 mm	BQ131
7/16-20 UNF (-04 JIC)	7/16-24 UNS	16mm	9/16"	36 mm	BQ134
7/16-20 UNF (-04 JIC)	M10×1	11.6 mm	1/2"	31.6 mm	BQ176
7/16-20 UNF (-04 JIC)	M12×1	16mm	14mm	36 mm	BQ144
7/16-20 UNF (-04 JIC)	M12×1.25	16mm	14mm	37 mm	BQ149

/// Male-Male Adapters Assortment Kit, BQ7010, is on page 158.

### -04 JIC to M10×1

### **BQ145**

JIC thread 7/16-20 UNF
Dash size -04 JIC
2nd thread M10×1
Hex 12 mm
Stud length 9 mm
Overall length 29 mm

Designed to be used with ISO 24° cone connector.

### -03 JIC to 1/8-28 BSPP

#### **BQ157**

JIC thread 3/8-24 UNF
Dash size -03 JIC
2nd thread 1/8-28 BSPP
Hex 5/8"
Stud length 6.5 mm
Overall length 25.9 mm



Designed to be used with bonded washer (dowty seal).

CONTINUED

### **BUMP TUBE ADAPTERS**

These adapters are for power steering and fuel systems.

### Male to O-ring Pilot

O-ring pilot includes a high-temperature Viton O-ring.

Stud Thread	O-ring Pilot Thread	Hex	Overall Length	Part Number
1/2-20 UNF (-05 JIC)	1/2-20 UNF	9/16"	37.4 mm	5MBT-5MJ
9/16-18 UNF (-06 JIC)	11/16-18 UNS	3/4"	41.9 mm	7MBT-6MJ
9/16-18 UNF (-06 JIC)	$M14 \times 1.5$	5/8"	38.8 mm	14MMBT-6MJ
9/16-18 UNF (-06 JIC)	$M16 \times 1.5$	17mm	38.9 mm	16MMBT-6MJ
9/16-18 UNF (-06 JIC)	M18 × 1.5	3/4"	39.4 mm	18MMBT-6MJ



### Male to O-ring Boss

O-ring boss includes a PTFE crush ring

Stud Thread	O-ring Boss Thread	Hex	Overall Length	Part Number
9/16-18 UNF (-06 JIC)	M16 × 1.5 (Ford type III)	18 mm	32.1 mm	16MMORB-6MJ



### Female to O-ring Pilot

O-ring pilot includes a high-temperature Viton O-ring.

Port Thread	O-ring Pilot Thread	Hex	Overall Length	Part Number
5/8-18 UNF inverted	$M16 \times 1.5$	3/4"	30.8 mm	16MMBT-6FI



/// Bump Tube Adapter Assortment Kit, BQ7003, is on page 157.

### TRANSMISSION LINE ADAPTERS

### Straight

**BQ182** 

Thread 5/8-18 UNF Seat type inverted



#### 90°

**BQ183** 

Thread 5/8-18 UNF Seat type inverted



CONTINUED

# **COPPER WASHERS**

Sold in packs of 20.

Bolt Size	Diameter	Thickness	Part Number
3/8"	5/8"	1.5 mm	BQ3858
7/16"	18mm	1.5 mm	BQ1118
1/2"	20 mm	2mm	BQ1320
9/16"	21 mm	2mm	BQ1421
8mm	13mm	1.3 mm	BQ813
10 mm	16mm	1.5 mm	BQ1016
12mm	18mm	1.5 mm	BQ1218
15 mm	22mm	2mm	BQ1522
16 mm	24mm	2mm	BQ1624



Copper Seat Seal (Flare Gasket) BQ244 pack of 10

/// Copper Washer Assortment Kit, BQ7000, is on page 157.

# **BANJO BOLTS**

### Standard

Thread	Stud Length	Hex	Part Number		Washer
3/8-24 UNF	25 mm	11 mm	BQ8093		BQ3858
7/16-20 UNF	23.8 mm	1/2"	BQ8089		BQ1118
7/16-20 UNF	27 mm	11 mm	BQ8096		BQ1118
7/16-24 UNS	26.5 mm	1/2"	BQ8090		BQ1118
1/2-20 UNF	31 mm	9/16"	BQ8097		BQ1320
M8×1	17 mm	10 mm	BQ8076		BQ813
M8×1.25	16 mm	10 mm	BQ8077		BQ813
M10×1	22 mm	11 mm	BQ8095		BQ1016
M10×1	26 mm	11 mm	BQ8094		BQ1016
M10×1.25	22 mm	11 mm	BQ8099		BQ1016
M10×1.5	20 mm	11 mm	BQ8075		BQ1016
M10×1.5	23 mm	11 mm	BQ8086		BQ1016
M10×1.5	23 mm	11 mm	BQ8086SS	stainless	BQ1016
M10×1.5	27 mm	11 mm	BQ8088		BQ1016
M11×1.25	23 mm	11 mm	BQ8087		BQ1118
M12×1	21.3 mm	13 mm	BQ8098		BQ1218
M12×1.25	25 mm	13 mm	BQ8078		BQ1218
M12×1.5	25 mm	13 mm	BQ8092		BQ1218



### Double

Thread	Stud Length	Hex	Part Number	Washer
3/8-24 UNF	34.5 mm	7/16"	BQ8085	BQ3858
M10×1	34.5 mm	11 mm	BQ8083	BQ1016
M10×1.25	34.5 mm	11 mm	BQ8084	BQ1016



/// Banjo Bolt Assortment Kit, BQ7007, is on page 158.

CONTINUED

# **BANJO ADAPTERS**

Block

Block banjo adapter ports have an inverted seat.

Thread	Hole Size	Thickness	Width	Part Number
3/8-24 UNF	10.2mm	1/2"	17 mm	BQ60
7/16-24 UNS	11.2mm	14 mm	18 mm	BQ62
1/2-20 UNF	12.9 mm	16mm	20 mm	BQ63
M10×1	10.2mm	13 mm	17 mm	BQ61



Round

Round banjo adapters have a JIC stud.

Thread	Dash Size	Hole Size	Thickness	Width	Overall Length	Part Number
3/8-24 UNF	-03 JIC	10 mm	10 mm	17 mm	42 mm	BQ150 tube
3/8-24 UNF	-03 JIC	10 mm	10 mm	17 mm	19.6mm	BQ151
3/8-24 UNF (2)	-03 JIC	10 mm	10 mm	17 mm	39.2mm	BQ152 union
7/16-20 UNF	-04 JIC	10 mm	10 mm	18 mm	42 mm	BQ155 tube
1/2-20 UNF	-05 JIC	14 mm	14 mm	24 mm	26 mm	BQ271
1/2-20 UNF	-05 JIC	14 mm	14 mm	24 mm	44 mm	BQ392 tube
9/16-18 UNF	-06 JIC	16 mm	16mm	28 mm	44 mm	BQ393 tube



/// Banjo Adapters Assortment Kit, BQ7001, page 157.

# **BRAZE-ON BANJO HEADS**

Hole Size	Thickness	Width	Tube Size	Overall Length	Part Number
7/16"	10 mm	19 mm	3/16"	27.5 mm	BQ225
10.2 mm	8 mm	17 mm	3/16"	25.5 mm	BQ223
10.2 mm	10 mm	18mm	3/16"	26 mm	BQ224
12.2 mm	12mm	22mm	10 mm	27 mm	BQ178
14.2 mm	14 mm	24 mm	10 mm	28 mm	BQ179



/// Brazing rods are on page 146.

CONTINUED

# **BLEED SCREWS**

Thread	Stud Length	Hex	Part Number	Сар
1/4-28 UNF	15.3 mm	7 mm	BQ4439	BQ315
5/16-24 UNF	17.5 mm	5/16"	BQ4438	BQ316
3/8-24 UNF	20.8 mm	3/8"	BQ4433	BQ315
7/16-20 UNF	20.5 mm	7/16"	BQ4445	BQ316
7/16-24 UNS	24.5 mm	7/16"	BQ4444	BQ316
$M7 \times 1$	12.5 mm	8 mm	BQ4436	BQ315
$M7 \times 1$	21.5 mm	7 mm	BQ4441	BQ315
M8×1	17.5 mm	8mm	BQ4443	BQ316
M8×1.25	22.1 mm	8mm	BQ4442	BQ316
M10×1	19.5 mm	10 mm	BQ4435	BQ315
M10×1	24.1 mm	10 mm	BQ4434	BQ315
M10×1.25	20.4 mm	10 mm	BQ4446	BQ316
M10×1.5	17.9mm	10 mm	BQ4440	BQ316



#### Bleed Screw Caps

Part Number	Size
BQ315	Small
BQ316	Large



### Bleed Screw Repair Kit

#### **BQ181**

Rescue your brake component that has a stripped or broken bleed screw: simply drill and tap to 1/8-27 NPT.



/// Bleeder Buster Kit, BQ2200, is on page 143. /// Bleed Screws Assortment Kit, BQ7014, is on page 159.

# **BRAKE HOSE CAPS & PLUGS**

### Caps



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Thread	Hex	Part Number	Thread	Fits	Hex	Part Number
3/8-24 UNF	1/2"	BQ160	1/8-27 NPT	-	7/16"	BQ508
7/16-20 UNF	9/16"	BQ162	3/8-24 UNF	inverted seat	3/8"	BQ503
7/16-24 UNS	9/16"	BQ161	7/16-24 UNS	inverted seat	7/16"	BQ504
1/2-20 UNF	5/8"	BQ163	M10×1	drill-point seat	11 mm	BQ506
M10×1	13 mm	BQ164	M10×1	inverted seat	11 mm	BQ502
M10×1.25	13 mm	BQ165	M12×1	drill-point seat	13mm	BQ507
M12×1	16mm	BQ166	M12×1	inverted seat	13 mm	BQ505
M12×15	16mm	BQ167				

/// Brake Hose Plugs & Caps Assortment Kit, BQ7015, is on page 159.

CONTINUED

# **ASSORTMENT KITS**

Assortment kits contain a selection of hard-to-find parts and problem-solvers. Call about custom branding.

# Copper Washers

#### **BQ7000**

Part Number	Qty
BQ1016	20
BQ1118	20
BQ1218	20
BQ1320	20
BQ1421	10
BQ1522	10
BQ1624	10
BQ3858	20



/// Copper washer listing is on page 154.

# Banjo Adapters

#### **BQ7001**

Part Number	Qty
BQ60	4
BQ61	4
BQ62	4
BQ63	4
BQ150	4
BQ151	4



/// Banjo adapter listing is on page 155.

### 3-Way Tube Tees

#### **BQ7002**

Part Number	Qty
BQ56A	2
BQ90A	2
BQ91A	2
BQ92A	2
BQ93A	2
BQ95A	2



/// Tee listing is on page 149.

### **Bump Tube Adapters**

#### **BQ7003**

Part Number	Qty
5MBT-5MJ	4
7MBT-6MJ	4
14MMBT-6MJ	4
16MMBT-6FI	4
16MMBT-6MJ	4
18MMBT-6MJ	4



/// Bump tube adapter listing is on page 153.

### Male-Female Adapters

#### **BQ7004**

Part Number	Qt
BQ40	2
BQ41	4
BQ42	4
BQ43	4
BQ44	4
BQ45	4
BQ46	4
BQ47	4
BQ48	4
BQ49	4
BQ50	4
BQ120	4
BQ121	2
BQ122	4
BQ123	2
BQ124	2
BQ125	4

BQ156



/// Male-Female adapter listing is on page 151.

CONTINUED

### Metric Tube Nuts

#### **BQ7005**

Part Number	Qty
BQ72	4
BQ4511	10
BQ4512	6
BQ4513	6
BQ9174	4
BQ9175	4
BQ9178	4
BQ9179	4
BQ9180	4
BQ9182	4
BQ9183	4
BQ9188	4
BQ9191	4
BQ9192	4
BQ9193	4



/// Metric tube nut listing is on page 144.

# Imperial Tube Nuts

### **BQ7006**

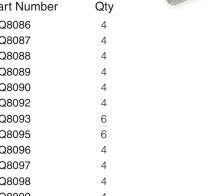
Part Number	Qty
BQ57	4
BQ2577	10
BQ2578	6
BQ4276	4
BQ4277	4
BQ4285	4
BQ5555	10
BQ5842	10
BQ6118	6
BQ9176	4
BQ9177	4
BQ9184	4
BQ9185	4
BQ9186	4
BQ9187	4



# Banjo Bolts

#### **BQ7007**

Part Number	Qty
BQ8086	4
BQ8087	4
BQ8088	4
BQ8089	4
BQ8090	4
BQ8092	4
BQ8093	6
BQ8095	6
BQ8096	4
BQ8097	4
BQ8098	4
BQ8099	4



/// Banjo bolt listing is on page 154.

### Female Unions

#### **BQ7009**

Part Number	Qty
BQ110	4
BQ111	4
BQ114	4
BQ115	4
BQ116	4
BQ117	4



/// Female union listing is on page 147.

# Male-Male Adapters

### **BQ7010**

Part Number	Qty
BQ129	4
BQ130	4
BQ131	4
BQ134	4
BQ135	4
BQ144	4



/// Male-Male adapter listing is on page 152.

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### **Bleed Screws**

### **BQ7014**

Part Number	Qty
BQ315	10
BQ316	10
BQ4433	4
BQ4434	4
BQ4435	4
BQ4438	4
BQ4439	4
BQ4440	4
BQ4441	4
BQ4442	4
BQ4443	4
BQ4444	4
BQ4445	4
BQ4446	4



/// Bleed screw listing is on page 156.

# Brake Hose Plugs & Caps

### **BQ7015**

Part Number	Qty	
BQ160	2	Me Maria
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BQ163	2	
BQ164	2	
BQ165	2	
BQ166	2	
BQ167	2	
BQ502	2	
BQ503	2	
BQ504	2	
BQ505	2	BQ1020R
BQ506	2	
BQ507	2	
BQ508	2	
BQ1020R	1	

/// Plug and cap listing is on page 156.



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BQ9169	145	BQB18	102	BQB221	104	FL13-6	132
BQ9174	145	BQB19	102	BQB222	104	FL14-5	132
BQ9175	145	BQB20	98	BQB223	104	FL14-6	132
BQ9176	144	BQB23	102	BQB224	104	FL15	132
BQ9177	144	BQB24	98	BQB225	104	FL20-5	131
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BQ9180	145	BQB29	98	BQB258	103	FL22	133
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BQ9183	145	BQB35	102	BQB285	103	FL34	133, 150
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BQ9185	144	BQB37	102	BQB313	101	FL36	132
BQ9186	144	BQB38	102	BQB315	97	FL37	132
BQ9187	144	BQB39	99	BQB316	97	FL38	132
BQ9188	145	BQB40	99	BQB317	97	FL39	132
BQ9189	145	BQB41	99	BQB318	97		
BQ9190	145	BQB42	99	BQB319	97	HE	
BQ9191	145	BQB48	102	BQB336	101	HF	
BQ9192	145	BQB50	99	BQB337	101	HF01	27
BQ9193	145	BQB52	102	BQB338	101	HF01SS	27
BQ9194	145	BQB64	99	BQB339	101	HF02	26
BQ9194 BQ9195		BQB65	99		101	HF03	26
	145			BQB415	101	HF04	23
BQ9196	145	BQB69	102				
BQ9197	145	BQB72	103	BQFL		HF05	27
BQ9198	145	BQB73	103		404	HF06	23
BQ9199	145	BQB75	99	BQFL4500	134	HF07	23
BQ9201	144	BQB83	99			HF07SS	23
BQ9207	144	BQB85	103	FL		HF08	25
BQ9208	145	BQB86	99		100	HF09	20
BQ9209	145	BQB87	99	FL01-5	132	HF09SS	20
BQ9210	145	BQB88	99	FL01-6	132	HF09W	20
BQ9219	144	BQB89	100	FL02-5	131	HF10	20
BQ9226	145	BQB90	100	FL02-6	131	HF11	20
BQ9239	144	BQB91	100	FL03-5	131	HF11SS	20
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BQ9300		BQB109	100	FL04-6	131	HF12SS	21
BQ9301	151			FL05-4	131	HF13	21
BQ9304	151	BQB110	103	FL06-5-4	131		21
BQ9305	151	BQB111	100	FL06-6-5	131	HF13SS	
BQ9307	151	BQB112	100	FL07-5	131	HF14	21
		BQB115	100			HF15	23
		BQB118	100	FL07-6	132	HF15SS	23
		BQB119	100	FL08-4-5	131	HF16	22

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HF18	24			HFB77	40	HFB242	36
HF26	27		HFB	HFB78	39	HFB243	41
HF27	27	LIEDO1		HFB79	39	HFB245	36
HF28	24	HFB01 HFB02	47 52	HFB81	30	HFB246	36
HF29 HF30	24 29	HFB03	47	HFB86 HFB87	38 38	HFB247 HFB248	36 36
HF31	29 29	HFB05	47	HFB90	30 40	HFB249	36
HF33	23	HFB09	52	HFB91	34	HFB250	36
HF34	25	HFB09SS	52	HFB92	52	HFB251	33
HF35	29	HFB10	56	HFB93	52	HFB256	33
HF37	28	HFB11	38	HFB100	31	HFB259	35
HF38	28	HFB12	34	HFB101	40	HFB260	35
HF39	23	HFB13	30	HFB105	58	HFB267	35
HF43SS	22	HFB14	34	HFB106	58	HFB270	45
HF45SS	22	HFB15	52	HFB107	34	HFB276	46
HF61	20	HFB16	33	HFB108	34	HFB277	42
HF62	29	HFB17 HFB19	30 57	HFB111	47	HFB278	42
HF63	22	HFB21	30	HFB112	30	HFB283	41
HF71	28	HFB22	30	HFB113	33	HFB284	37 37
HF72 HF73	28 28	HFB23	30	HFB114 HFB119	33 34	HFB285 HFB286	37 37
HF74	28	HFB27	47	HFB120	34	HFB288	48
HF77	26	HFB28	52	HFB121	36	HFB300	31
HF81	22	HFB29	47	HFB122	36	HFB306	45
HF82	25	HFB32	47	HFB131	44	HFB307	45
HF83	29	HFB33	47	HFB132	44	HFB310	34
HF92	24	HFB34	48	HFB135	41	HFB312	40
HF94	23	HFB34SS	48	HFB136	41	HFB315	42
HF98	24	HFB35	48	HFB140	41	HFB316	42
HF99	25	HFB37	52	HFB141	41	HFB322	43
HF100	23	HFB37SS	52	HFB144	31	HFB323	43
HF101	23	HFB39 HFB40	40 33	HFB145	40	HFB324	43
HF102	21 29	HFB41	34	HFB148	44	HFB328	37 37
HF114 HF115	29 25	HFB45	33	HFB150 HFB155	57 44	HFB329 HFB340	57 53
HF116	25 25	HFB46	31	HFB156	44	HFB342	48
HF117	25	HFB47	57	HFB158	57	HFB343	48
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HF125	29	HFB48	39	HFB161	35	HFB345	53
HF135	24	HFB49	33	HFB165	46	HFB348	53
HF137	26	HFB50	48	HFB166	46	HFB349	53
HF139	26	HFB51	35	HFB173	36	HFB351	53
HF142	24	HFB54	38	HFB180	33	HFB352	53
HF145	24	HFB55	39	HFB187	33	HFB353	53
HF150	22	HFB56 HFB58	38 41	HFB193	43	HFB354	53
HF154	24	HFB59	38	HFB194	53	HFB357	54
HF155SS HF157BT	27 22	HFB60	39	HFB203 HFB209	44 43	HFB358 HFB359	49 49
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HF164Z	23	HFB67	46	HFB222	44	HFB364	54
HF300	28	HFB68	41	HFB230	42	HFB366	49
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HFB373	54	HFB567	51	HFC346	92	HFIF28	60
HFB375	54	HFB568	51	HFC347	92	HFIF31	60
HFB379	40	HFB569	51	HFC348	93	HFIF32	68
HFB380	45	HFB570	51	HFC350	93	HFIF33	70
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HFB384	45	HFB574	56	HFC352	93	HFIF35	70
HFB386	42	HFB590	32	HFC353	93	HFIF36	68
			32				
HFB387	42	HFB591		HFC354	93	HFIF36SS	68
HFB397	31	HFB592	32	HFC355	93	HFIF37	59
HFB403	38	HFB593	32	HFC356	93	HFIF38	68
HFB410	37	HFB594	32	HFC357	93	HFIF39	60
HFB411	37	HFB595	32	HFC358	93	HFIF40	68
HFB418	42	HFB597	37	HFC359	93	HFIF43	59
HFB419	42	HFB598	32	HFC360	93	HFIF45	68
HFB430	43	HFB599	32	HFC361	94	HFIF46	61
HFB431	43	HFB623	45	HFC362	94	HFIF47	59
HFB448	58	HFB624	45	HFC365	94	HFIF48	60
HFB450	35	HFB679	58	HFC366	94	HFIF51	71
HFB451	35	HFB681	58	HFC367	94	HFIF52	63
HFB456	54	HFB682	58	HFC368	94	HFIF53	59
HFB457	54			HFC369	94	HFIF54	61
HFB474	31	LIFO		HFC370	94	HFIF55	59
HFB475	31	HFC		HFC371	94	HFIF56	59
	32	HFC01	95				
HFB493		HFC02		HFC372	94	HFIF57	61
HFB494	32		95	HFC373	94	HFIF60A	62
HFB519	55	HFC04	91	HFC374	94	HFIF66	59
HFB523	55	HFC05	91	HFC379	95	HFIF70	62
HFB527	55	HFC06	95	HFC380	95	HFIF71	68
HFB528	55	HFC07	95	HFC381	95	HFIF72	68
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		HFC10 HFC12	95 96		95	HFIF74 HFIF77	
HFB533 HFB534	56 55	HFC10	95	HFC382  HFIF	95	HFIF74 HFIF77	69
HFB533 HFB534 HFB535	56 55 55	HFC10 HFC12 HFC13	95 96 96			HFIF74 HFIF77 HFIF79	69 61 71
HFB533 HFB534 HFB535 HFB536	56 55 55 55	HFC10 HFC12 HFC13 HFC15	95 96 96 96	HFIF HFIF01	67	HFIF74 HFIF77 HFIF79 HFIF80	69 61 71 60
HFB533 HFB534 HFB535 HFB536 HFB537	56 55 55 55 55	HFC10 HFC12 HFC13 HFC15 HFC17	95 96 96 96 96	HFIF HFIF01 HFIF01B	67 67	HFIF74 HFIF77 HFIF79 HFIF80 HFIF83	69 61 71 60 69
HFB533 HFB534 HFB535 HFB536 HFB537 HFB538	56 55 55 55 55 55	HFC10 HFC12 HFC13 HFC15 HFC17 HFC18	95 96 96 96 96 91	HFIF HFIF01 HFIF01B HFIF01SS	67 67 67	HFIF74 HFIF77 HFIF79 HFIF80 HFIF83 HFIF85	69 61 71 60 69
HFB533 HFB534 HFB535 HFB536 HFB537 HFB538 HFB539	56 55 55 55 55 55 56	HFC10 HFC12 HFC13 HFC15 HFC17 HFC18 HFC19	95 96 96 96 96 91	HFIF HFIF01 HFIF01SS HFIF02	67 67 67 70	HFIF74 HFIF77 HFIF79 HFIF80 HFIF83 HFIF85 HFIF87	69 61 71 60 69 69
HFB533 HFB534 HFB535 HFB536 HFB537 HFB538	56 55 55 55 55 55	HFC10 HFC12 HFC13 HFC15 HFC17 HFC18 HFC19 HFC301A	95 96 96 96 96 91 91	HFIF HFIF01 HFIF01B HFIF01SS HFIF02 HFIF03	67 67 67 70 71	HFIF74 HFIF77 HFIF79 HFIF80 HFIF83 HFIF85	69 61 71 60 69
HFB533 HFB534 HFB535 HFB536 HFB537 HFB538 HFB539 HFB540	56 55 55 55 55 55 56	HFC10 HFC12 HFC13 HFC15 HFC17 HFC18 HFC19	95 96 96 96 96 91	HFIF HFIF01 HFIF01SS HFIF02	67 67 67 70	HFIF74 HFIF77 HFIF80 HFIF83 HFIF85 HFIF87	69 61 71 60 69 69 69 60
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HFB533 HFB534 HFB535 HFB536 HFB537 HFB538 HFB539 HFB540 HFB541 HFB541	56 55 55 55 55 55 56 56	HFC10 HFC12 HFC13 HFC15 HFC17 HFC18 HFC19 HFC301A HFC307 HFC316	95 96 96 96 91 91 96 96	HFIF  HFIF01  HFIF01B  HFIF01SS  HFIF02  HFIF03  HFIF05  HFIF06	67 67 67 70 71 67 71	HFIF74 HFIF79 HFIF80 HFIF83 HFIF85 HFIF87 HFIF88 HFIF90 HFIF94	69 61 71 60 69 69 69 60 62 60
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HFB533 HFB534 HFB535 HFB536 HFB537 HFB538 HFB539 HFB540 HFB541 HFB542 HFB544 HFB544 HFB545	56 55 55 55 55 56 56 56 49 49	HFC10 HFC12 HFC13 HFC15 HFC17 HFC18 HFC19 HFC301A HFC307 HFC316 HFC319 HFC320 HFC321	95 96 96 96 91 91 96 91 91 91	HFIF HFIF01 HFIF01B HFIF01SS HFIF02 HFIF03 HFIF05 HFIF06 HFIF06 HFIF07 HFIF08 HFIF09	67 67 67 70 71 67 71 67 71	HFIF74 HFIF77 HFIF80 HFIF83 HFIF85 HFIF87 HFIF88 HFIF90 HFIF94 HFIF99 HFIF103 HFIF106	69 61 71 60 69 69 60 62 60 62 69 69
HFB533 HFB534 HFB535 HFB536 HFB537 HFB538 HFB539 HFB540 HFB541 HFB542 HFB544 HFB545	56 55 55 55 55 56 56 56 56 49	HFC10 HFC12 HFC13 HFC15 HFC17 HFC18 HFC19 HFC301A HFC307 HFC316 HFC319 HFC321 HFC321	95 96 96 96 91 91 96 91 91 91	HFIF HFIF01 HFIF01B HFIF01SS HFIF02 HFIF03 HFIF05 HFIF06 HFIF06 HFIF07 HFIF08 HFIF09 HFIF10	67 67 67 70 71 67 71 67 70 67	HFIF74 HFIF77 HFIF80 HFIF83 HFIF85 HFIF87 HFIF88 HFIF90 HFIF94 HFIF99 HFIF103	69 61 71 60 69 69 69 60 62 60 62 69
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HFB533 HFB534 HFB535 HFB536 HFB537 HFB538 HFB539 HFB540 HFB541 HFB542 HFB544 HFB544 HFB545 HFB546 HFB547	56 55 55 55 55 56 56 56 56 49 49 49 50	HFC10 HFC12 HFC13 HFC15 HFC17 HFC18 HFC301A HFC307 HFC316 HFC319 HFC320 HFC321 HFC322	95 96 96 96 91 91 96 91 91 91 91	HFIF  HFIF01  HFIF01B  HFIF01SS  HFIF02  HFIF03  HFIF05  HFIF06  HFIF07  HFIF08  HFIF09  HFIF10  HFIF11	67 67 67 70 71 67 71 67 67 67 70	HFIF74 HFIF77 HFIF80 HFIF83 HFIF85 HFIF87 HFIF88 HFIF90 HFIF90 HFIF103 HFIF106 HFIF109 HFIF1109	69 61 71 60 69 69 60 62 60 62 69 69 63
HFB533 HFB534 HFB535 HFB536 HFB537 HFB538 HFB539 HFB540 HFB541 HFB542 HFB544 HFB545 HFB546 HFB546 HFB547 HFB548 HFB551	56 55 55 55 55 56 56 56 56 49 49 49 50 50	HFC10 HFC12 HFC13 HFC15 HFC17 HFC18 HFC19 HFC301A HFC307 HFC316 HFC319 HFC321 HFC322 HFC323	95 96 96 96 91 91 96 91 91 91 91 91	HFIF  HFIF01  HFIF01B  HFIF01SS  HFIF02  HFIF03  HFIF05  HFIF06  HFIF07  HFIF08  HFIF09  HFIF10  HFIF11  HFIF11	67 67 67 70 71 67 71 67 67 67	HFIF74 HFIF77 HFIF80 HFIF83 HFIF85 HFIF87 HFIF88 HFIF90 HFIF90 HFIF103 HFIF106 HFIF110 HFIF111	69 61 71 60 69 69 69 60 62 69 69 69 63 60 61
HFB533 HFB534 HFB535 HFB536 HFB537 HFB538 HFB539 HFB540 HFB541 HFB542 HFB544 HFB545 HFB545 HFB546 HFB547 HFB548 HFB551 HFB551	56 55 55 55 55 56 56 56 56 49 49 49 50 50	HFC10 HFC12 HFC13 HFC15 HFC17 HFC18 HFC301A HFC307 HFC316 HFC319 HFC320 HFC321 HFC322 HFC323 HFC324 HFC324	95 96 96 96 91 91 96 91 91 91 91 91 92 92	HFIF  HFIF01  HFIF01B  HFIF01SS  HFIF02  HFIF03  HFIF05  HFIF06  HFIF07  HFIF08  HFIF09  HFIF10  HFIF11  HFIF11	67 67 67 70 71 67 71 67 67 67 67	HFIF74 HFIF77 HFIF80 HFIF83 HFIF85 HFIF87 HFIF88 HFIF90 HFIF103 HFIF106 HFIF110 HFIF111	69 61 71 60 69 69 69 60 62 69 69 63 60 61 71
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HFB533 HFB534 HFB535 HFB536 HFB537 HFB538 HFB539 HFB540 HFB541 HFB542 HFB544 HFB545 HFB546 HFB547 HFB548 HFB551 HFB551 HFB553 HFB553 HFB553 HFB554 HFB555	56 55 55 55 55 56 56 56 56 49 49 49 50 50 50 50 50	HFC10 HFC12 HFC13 HFC15 HFC17 HFC18 HFC19 HFC301A HFC307 HFC316 HFC319 HFC320 HFC321 HFC322 HFC323 HFC324 HFC325 HFC325 HFC326 HFC338 HFC338	95 96 96 96 91 91 96 91 91 91 91 91 92 92 92 96 92	HFIF  HFIF01  HFIF01B  HFIF01SS  HFIF02  HFIF03  HFIF05  HFIF06  HFIF07  HFIF08  HFIF10  HFIF11  HFIF11  HFIF11  HFIF14  HFIF15  HFIF15  HFIF15  HFIF18  HFIF19  HFIF20  HFIF20	67 67 67 70 71 67 71 67 67 67 67 67 62 68 68 70 66	HFIF74 HFIF77 HFIF80 HFIF83 HFIF85 HFIF87 HFIF88 HFIF90 HFIF99 HFIF103 HFIF106 HFIF110 HFIF111 HFIF110 HFIF111	69 61 71 60 69 69 69 60 62 69 69 63 60 61 71 62 60 63 69
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