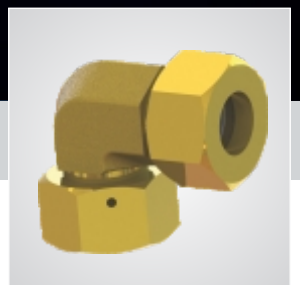
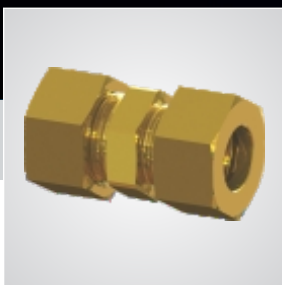




## HYDRAULIC FLARELESS FITTINGS



**ENGINEERING  
FLOW CONTROL**

**HYD-AIR HYDRAULIC  
FLARELESS FITTINGS**

# THE HYDRAULIC EXPERTS

Hyd-Air Engineering works Goa was established in 1982 by the late Dr. Y.E. Moochhala, a Ph.D in Mechanical Engineering from Northwestern University, USA. Headquartered in Mumbai, with a factory located in Goa, the team at Hyd-Air has more than 30 years of expertise in the design, engineering & manufacture of Pipe Clamps, SAE Flanges and Hydraulic Fittings. Our client in India and abroad include large industrial houses, power generation units, steel and ore processing units, shipyards.

## IN HOUSE 2D AND 3D DESIGN CAPABILITIES



## KEY CLIENTS

Bharat Heavy Electricals Ltd.

Jindal Steel

Essar Steel

Tata Steel

SMS India

Siemens

Bosch Rexroth India

Mazagaon Dock

Goa Shipyard

Mecon

Shriram EPC

SAIL – Bokaro, RSP, BSP, IISCO

Rashtriya Ispat Nigam (RINL)

Putzmeister India

Garden Reach Ship Builders & Engineers

Integral Coach Factory

Bharat Earth Movers

## HYDRAULIC FLARELESS FITTINGS AND SINGLE FERRULE FITTINGS (DIN 2353, ISO 8434-1)

Hyd-Air manufactures 24° bite type hydraulic fittings according to the norms of DIN 2353. The Hyd-Air hydraulic fitting consists of three parts : body, ferrule or weld nipple and nut. The heart of the Hyd-Air fitting is the design of the hardened ferrule which “bites” into the pipe to provide a leak-proof joint. The unique action of the ferrule provides for a strong, vibration resistant joint which can withstand repeated dismantling and re-assembly. Hyd-Air hydraulic fittings are available for Fractional and Metric tubes and are offered in a variety of materials depending upon area of application.

### HYD-AIR RANGE OF HYDRAULIC FITTINGS

#### **Tube to Tube (Equal Fittings) :**

Both ends are tube and the assembly is with Ferrule/ Weld Nipple. The joint is made by assembly of fittings with ferrule. A Weld Nipple can be used instead of a ferrule when it is required to join two pipes of an equal size.

#### **Tube to Threads (Male/Female) :**

These fittings are generally known as “stud” couplings.

#### **Tube to Swivel :**

During installation, when a swivel end is needed to fit with a fixed line, a special swivel nut is provided which can revolve around the body but will not disengage. Swivel to Swivel connections are also available.

#### **Banjo Fittings :**

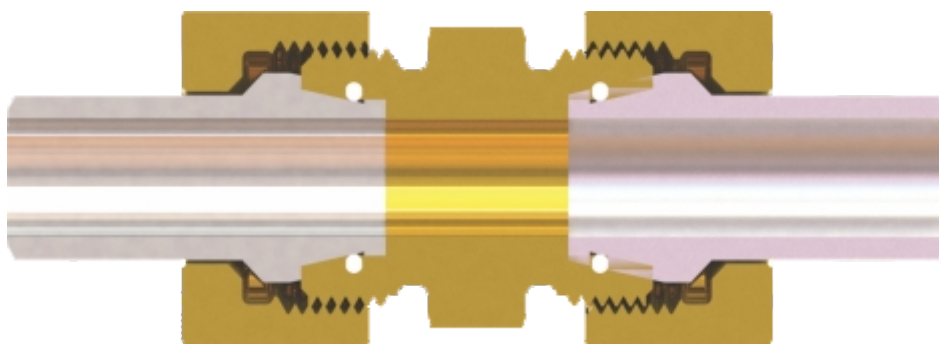
These are used for high pressure applications and provide a 360° rotation facility. These fittings are mainly used for positioning the tube fitting line. The perforated hollow shaped bolts directly on the end and pass through the spherical union body for fluid transfer.

#### **Adaptors :**

Used to connect fittings with instruments. Hyd-Air has a wide range of adaptors with different threads - Metric, BSP, BSPT, NPT.

#### **Other Components:**

Port reducers, Closing Plugs, Ferrules, Nuts, O rings, U rings, Elastomeric Rings.



## PRESSURE RATING AS PER DIN 2353

Hyd-Air fittings are available in Light, Medium and Heavy Series depending on the pipe size. Fittings with weld nipples are available only in Heavy Series.

## TECHNICAL DATA

LL - Light Series	
100 Kg/cm <sup>2</sup>	Tube OD 4 mm - 8mm
L - Medium Series	
250 Kg/cm <sup>2</sup>	Tube OD 6 mm - 15 mm
160 Kg/cm <sup>2</sup>	Tube OD 18 mm - 22 mm
100 Kg/cm <sup>2</sup>	Tube OD 28 mm - 42 mm
S - Heavy Series	
630 Kg/cm <sup>2</sup>	Tube OD 6 mm - 14 mm
400 Kg/cm <sup>2</sup>	Tube OD 16 mm - 25 mm
250 Kg/cm <sup>2</sup>	Tube OD 30 mm - 38 mm

## THREADING INFORMATION

MEDIUM SERIES (L)										
Tube OD	6	8	10	12	15	18	22	28	35	42
BSP/NPT/ BSPT METRIC	1/8", M10X1	1/4", M12X1.5	1/4", M14X1.5	3/8", 1/4", M16X1.5	1/2", M18X1.5	1/2", M22X1.5	3/4", M26X1.5	1", M33X2	1 1/4", M42X2	1 1/2", M48X2

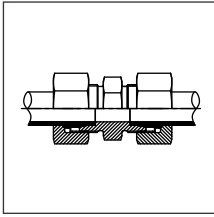
HEAVY SERIES (S)										
Tube OD	6	8	10	12	14	16	20	25	30	38
BSP/NPT/ BSPT METRIC	1/4", M12X1.5	1/4", M14X1.5	3/8", 1/4", M16X1.5	3/8", M18X1.5	1/2", M20X1.5	1/2", M22X1.5	3/4", M27X2	1", M33X2	1 1/4", M42X2	1 1/2", M48X2

## ASSEMBLY PROCEDURE

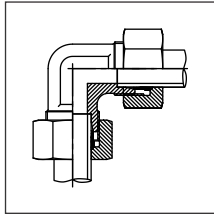
- Cut the pipe at 90° and de-burr the inside & outside edges
- Lubricate the nut and the threads with oil
- Gently insert the nut and ferrule over the tube end and ensure they are facing the right direction
- Insert this assembly into the body and tighten the nut by hand until finger tight
- Mark the nut and tube and tighten for a ¾ turn. Check the assembly – the pipe should be held fast. Tighten a further ¾ turn to achieve the ferrule “Bite” into the pipe
- During dismantling and re-assembly, mark the position of the nut in relation with body before disconnecting the joint. Re-assemble by tightening with a wrench and ensure that the nut comes to its original position in relation with body. Then tighten until slightly rise in torque is felt.



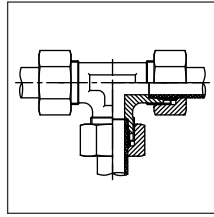
## TUBE TO TUBE



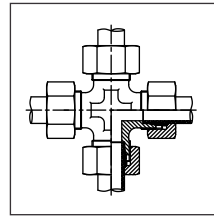
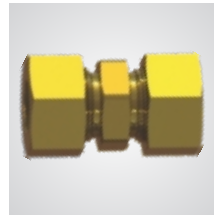
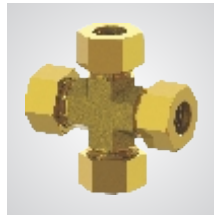
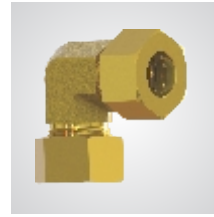
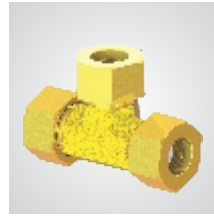
SU Straight Union



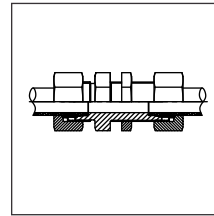
EU Equal Elbow



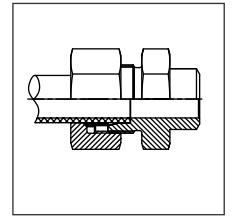
TU Equal Tee



KU Equal Cross



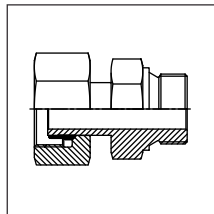
SBU Straight Bulk  
Head Coupling



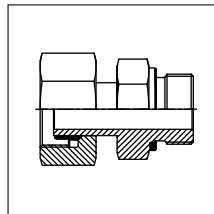
WC Weld Coupling

## TUBE TO THREADS

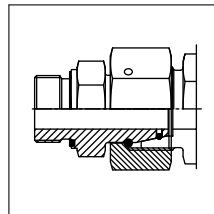
### Adapter Fittings (M- Metric, R- BSP)



SPA-M / SPA-R  
Stand Pipe Adapter



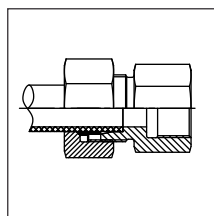
SPA-M-es / SPA-R-es  
Stand Pipe Adapter with  
Elastomeric Seal



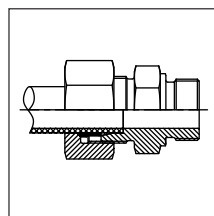
SAO-M-es / SAO-R-es  
Straight Stud Adapter  
with Elasto. Seal, Swivel Nut



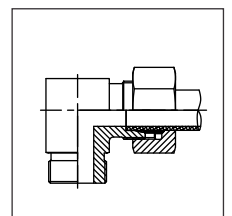
### Stud Coupling (M- Metric, R-BSP)



SFU-M / SFU-R  
Straight Female Stud  
Coupling

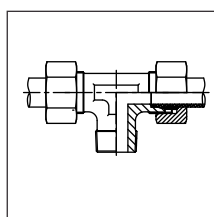


SMU-M / SMU-R  
Straight Male Stud  
Coupling

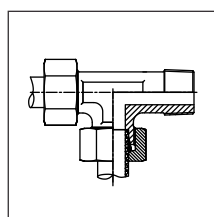


MEC-M / MEC-R  
Male Stud Elbow  
Coupling

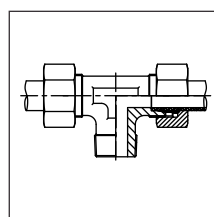
### Stud Tee Fittings (M- Metric, R- BSP, Rx- BSPT, N-NPT)



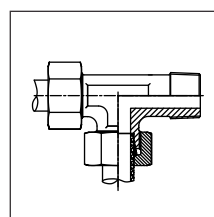
MBT-M / MBT-R  
Male Stud Branch Tee



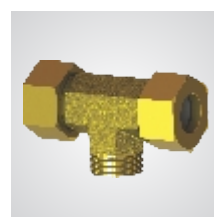
MRT-M / MRT-R  
Male Stud Run Tee



TMBT-Rx / N  
Taper Male Stud  
Branch Tee

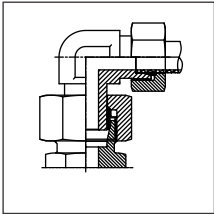


TMRT-Rx / N  
Taper Male Stud  
Run Tee

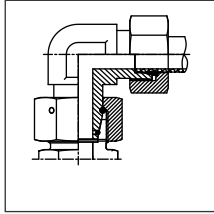


## SWIVEL FITTINGS

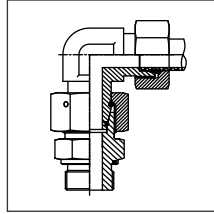
### Swivel Elbow Fittings (M- Metric, R-BSP)



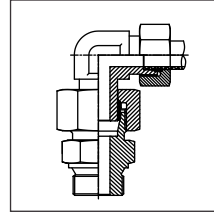
SWE  
Swivel Elbow



SWEO  
Swivel Elbow with  
O ring



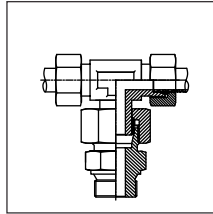
SWEOC-  
Mes/SWEOC-Res  
Swivel Elbow with  
O ring and Connector



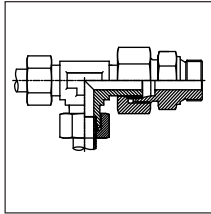
SWEC-M/SWEC-R  
Swivel Elbow with  
Connector



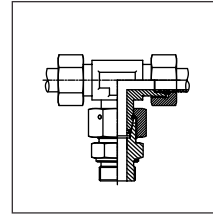
### Swivel Tee Fittings (M-Metric, R-BSP)



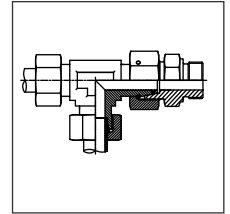
SWBTC-M/ SWBTC-R  
Swivel Branch  
Tee Connector



SWRTC-R  
Swivel Run  
Tee with Connector



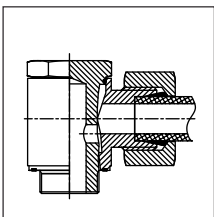
SWBTC-  
Mes/ SWBTC-Res  
Swivel Run Tee with  
O ring & Connector



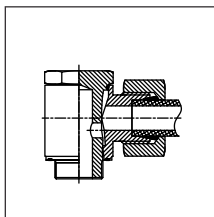
SWRTC-  
Mes/ SWRTC-Res  
Swivel Branch Tee with  
O ring and Connector

## BANJO CONNECTORS

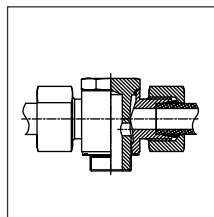
### Banjo Fittings (M-Metric, R-BSP)



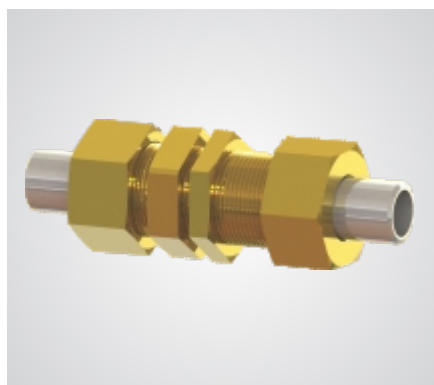
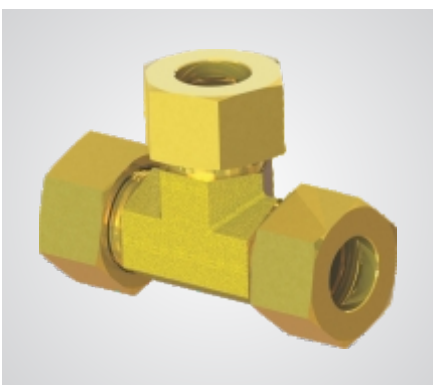
SWBC-M/ SWBC-R  
Swivel Banjo  
Elbow Connector



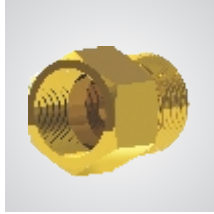
HSWBC-M/ HSWBC-R  
High Pressure Elbow  
Banjo Connector



HSWTBC-M/ HSWTBC-R  
High Pressure Tee  
Banjo Connector



## REDUCING ADAPTOR &amp; WELD NIPPLE

HA  
Hose AdaptorRTA  
Reducing Thread  
AdaptorRTAes Reducing  
Thread Adaptor with  
elastomeric sealWN  
Weld Nipple

Adaptors are available in male, female and male-female combinations and in sizes as per the chart below :

OPTIONS	1 / 8 "	1 / 4 "	3 / 8 "	1 / 2 "	3 / 4 "	1 "	1 1 / 4 "	1 1 / 2 "
1/8 "		✓	✓	✓				
1/4 "	✓		✓	✓	✓			
3/8 "	✓	✓		✓	✓			
1/2 "	✓	✓	✓		✓	✓	✓	✓
3/4 "		✓	✓	✓		✓	✓	✓
1 "		✓	✓	✓	✓		✓	✓
1 1/4 "				✓	✓	✓		✓
1 1/2 "				✓	✓	✓	✓	

Weld Nipple Fittings are available as per client requirements and tube size. Reducing Weld Nipple Adaptors can also be supplied.

## SWRTOC-25Res-SS : Swivel Run Tee with 'O' ring, Connector &amp; Elastomeric Seal

SWRTOC

—

25

—

S

—

R

—

es

—

SS

Type of  
FittingPipe  
ODPressure  
SeriesThreads  
TypeSealant  
TypeMaterial  
Type

## Material Code for Ordering

No Code

S

SL

SS

SSL

SST

B

es

Carbon Steel

Stainless Steel 304

Stainless Steel 304L

Stainless Steel 316

Stainless Steel 316L

Stainless Steel 316Ti

Brass (Is319)

Elastomeric Seal (Viton/Nitrile)



ISO-9001 REGISTERED FIRM  
Det Norske veritas B.V., THE NETHERLANDS



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## PROVEN TRACK RECORD



TPLK/RSP-BF5/Hyd-Air/0056A

Dated - 4<sup>th</sup> April' 13

**M/s. Hyd-Air Engineering Works Goa,**  
D2/29 Tivim Industrial Estate,  
Karaswada, Mapusa,  
Goa-403526

Ph : +91 832-225 7364  
Fax: +91 832-225 7624  
Email: [factory@hydaire.goa.com](mailto:factory@hydaire.goa.com)

Sub - RSP BF-5 Project: Performance Certificate.

This is certify that M/s. Hyd-Air Engineering Works Goa, have supplied "Hydraulic Flareless Fittings" for RSP-Blast furnace high pressure lines against our Purchase Order SUB/M&M Instl 1x4060 Blast Furnace RSP/803 Dtd. 17/02/2012. The performance of fittings supplied is satisfactory.

Regards  
For TATA PROJECTS LIMITED

  
(Z.R. KHAN)



Associated  
companies  
and products:



**H-A**<sup>®</sup>  
Hyd-Air

**F**<sup>®</sup>  
FLUID CONTROLS

Channel Partners



**LMG HYDRO PNEUMATICS**  
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• [www.lmghydro.com](http://www.lmghydro.com)