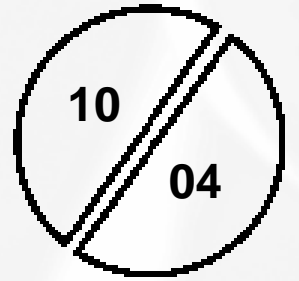
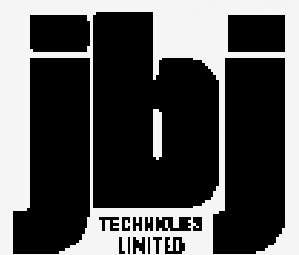




Quality Products for Mechanical
& Fluid Power



EQUIPMENTS FOR HAZARDOUS AREAS





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Declaration of
Atex Compliance

**jbj Techniques Limited of the address given above confirm that
the range of**

**GGR cast iron bellhousings
and
JXL anti-static couplings**

**contained herein have been produced in accordance with
the requirements specified within the
ATEX directive 94/9/EC**

Dossier receipt number
03011304 Intertek Testing Services

CONTENTS



quality products for mechanical & fluid power

The details of all the following products are reproduced to the correct details at going to press..... E & OE

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Introduction & Selection Details for JXL Couplings & Cast Iron Bellhousings

JBJ Techniques Limited has long been established as a quality supplier of bellhousings and shaft couplings for hydraulic pump drives. Skilled British engineers have been manufacturing the range of JXL anti-static couplings and cast iron bellhousings in the UK since 1984, specifically for use in hazardous areas.

The cast iron range of bellhousings, prefix GG is also available in high strength (SG) iron, prefix GGG, in addition we produce this range to suit NEMA motor flange dimensions without the use of adaptor plates.

These bellhousings are a one-piece component founded in the UK with minimal (trace) aluminium, magnesium, titanium and zirconium content*. Final machining is effected at jbj premises in Redhill; in some instances a steel flange may be bolted to the pump mounting face to facilitate the fitment of larger pumps. The bellhousings have been subject to a 20-Joule impact test with no damage noted.

The JXL range of resilient couplings is able to accept angular, radial and axial misalignment, they are torsionally resilient, non lubricating and capable of operating between temperatures of -50 degrees C and +105 degrees C.

The elements are flame resistant, anti-static and have NCB acceptance for use underground in coalmines number A2032.

If required, housings can be supplied with full chemical analysis and test bars. This must be requested at the time of ordering. A surcharge will apply.

SELECTION *

Couplings are selected on their ability to transmit torque between rotating shafts, with restricting factors being maximum speed and shaft diameter.

$$\text{Torque in Nm (Newton metres)} = \frac{\text{Power (Kw)} \times 9550}{\text{Speed (RPM)}}$$

$$\text{Example } 18.5 \text{ kW at } 1500 \text{ rpm} = \frac{18.5 \times 9550}{1500} = 117.783 \text{ Nm}$$

Calculate the torque to be transmitted, determine the required service factor with reference to the duty factor chart, multiply the relevant duty factors together to give the required service factor, multiply the calculated torque by this factor to give the required coupling rating.

Select the coupling size with reference to the continuous value, taking into account the bore diameters required.

* See selection notes for JXL couplings and cast iron bellhousings.

EQUIPMENT FOR HAZARDOUS AREAS

PRIME MOVER FACTORS



Prime Mover Factor

Motor or Turbine	Steam Engine Water Turbine	Gas or Oil Engine	
		1 or 3 Cylinders	2 or 4 Cylinders
1.00	1.25	2.00	1.50

Duty Factors

	Duty Factor		Duty Factor
Cranes & Hoists		Agitators	
Main Hoist	2.50	Vertical & Horizontal Screw, Propeller, Paddle	1.00
Skip Hoist	2.50	Blowers	
Slope	2.00	Centrifugal	0.75
Bridge, Travel or Trolley	2.00	Lobe or Vane	1.25
Dynamometer	1.00	Clarifier or Classifier	1.00
Elevators		Compressors	
Bucket, Centrifugal Discharge	1.25	Centrifugal	0.75
Freight or Passenger	2.00	Lobe or Rotary	1.25
Gravity Discharge	1.25	Reciprocating with Flywheel & Gear between Compressor & Prime Mover	
Escalators	1.00	1 cylinder, single acting	3.00
Exciter, Generator	1.00	1 cylinder, double acting	3.00
Extruder, Plastic Fans		2 cylinders, single acting	3.00
Centrifugal	0.75	2 cylinders, double acting	3.00
Cooling Tower	2.00	3 cylinders, single acting	3.00
Forced Draught - Across the Line start	1.50	3 cylinders, double acting	2.00
Forced Draught Motor Driven through fluid or electric slip clutch	1.00	4 or more cylinders, single acting	1.75
Gas Recirculating	1.50	4 or more cylinders, double acting	1.75
Induced Draught with Damper Control or Blade Cleaner	1.25	Conveyors	
Induced Draught without Controls	2.00	Apron, Assembly, Belt, Chain, Flight, Screw	1.00
Mine Ventilation - Surface	2.00	Bucket	1.25
Mine Ventilation - Underground	2.50	Live Roll, Shaker & Reciprocating	3.0
Mixers (See Agitators)		Feeders	
Concrete	1.75	Apron, Belt, Disc, Screw	1.00
Muller	1.50	Reciprocating	2.50
Press, Printing	1.50	Generators	
Pug Mill	1.75	Even Load	0.75
Pulverizers		Hoist or Railway Service	1.50
Hammermill	1.75	Welder Load	2.00
Hog	1.75	Hammermill	1.75
Roller	1.50	Laundry Washer or Tumbler	2.00
Pumps		Line Shafts	
Centrifugal	0.75	Any processing Machinery	1.50
Descaling, with Accumulators	1.25	Machine Tools	
Gear, Rotary or Vane	1.25	Auxilliary Drive	1.00
Reciprocating		Bending Roll, Notching Press, Punch Press, Planer, Plate Reversing	1.75
1 cylinder, single or double acting	2.00	Main Drive	1.50
2 cylinder, single acting	2.00	Traverse Drive	1.00
2 cylinder, double acting	1.75	Metal Forming Machines	
3 or more cylinders	1.50	Draw Bench Carriage & Main Drive	2.00
Screens		Extruder	2.00
Air Washing	1.00	Forming Machine & Forming Mills	2.00
Grizzly	2.00	Slitters	1.00
Rotary Coal or Sand	1.50	Wire Drawing or Flattening	1.75
Vibrating	2.50	Wire Winder	1.50
Water	1.00	Coilers & Uncoilers	1.50
Woodworking Machinery	1.00		

Reversing Factor 1.25



Selection Notes for JXL Couplings & Cast Iron Bellhousings

This is intended as a guide for the selection of bellhousings and couplings for the use in hazardous areas.

Consider motor power and speed against coupling nominal torque.

If the resilient bushes fail, metal-to-metal contact could occur, in order to minimise the risk of this situation, we recommend that the end user carry out periodic inspection of the coupling assembly with particular attention being applied to the resilient bushes. This can be further enhanced by the application of a large service factor to the coupling at the selection stage.

By the nature of the design of JXL couplings, a large service factor is easy to achieve, as a general rule, a full compliment of resilient bushes with each coupling selection will naturally give a high service factor.

Consider the site of the housing and coupling assembly.

If the assembly is to be positioned in an inaccessible area where periodic inspection will be difficult to achieve or may be 'overlooked' a high service factor will be very desirable, in many cases the provision of a dia 50mm inspection hole in the bellhousing will save time when inspecting the coupling.

Consider coupling clearance.

When selecting JXL couplings for use inside bellhousings, consideration must be given to clearances between rotating and non-rotating parts, based on BSI 9-2000 EN50019: 2000-173, we recommend that this clearance be a minimum of 5.0 mm in all cases, however the standard this information is derived from advises that clearance shall be 1/100 of the maximum diameter (rotating component), but in no case shall the clearance be less than 1.0mm, reference to this could be used in special circumstances, however it is envisaged that 5.0mm should be possible in all cases.

Consider vertical mounting.

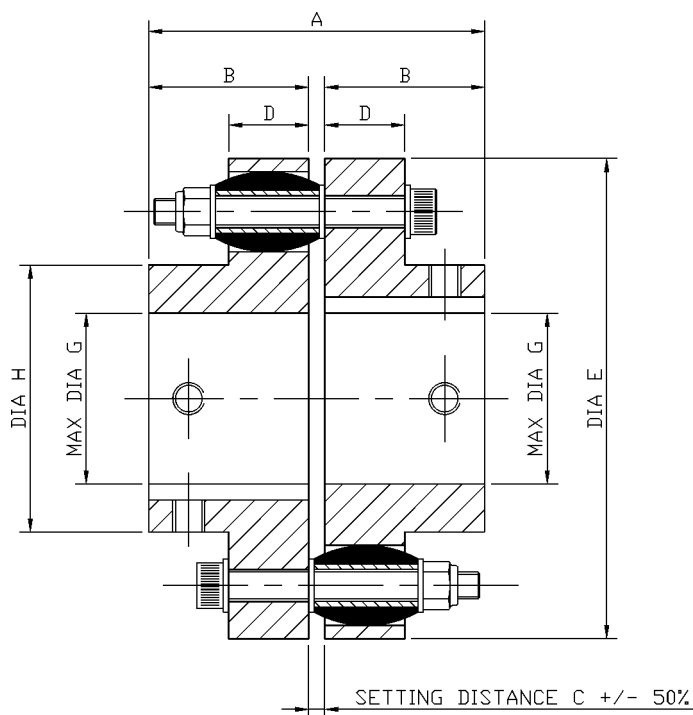
JXL coupling hubs are machined with an additional grub screw at 90 degrees to the grub screw over the key slot, this is to provide additional security against the hubs creeping down one or other shaft when mounted vertically, we strongly recommend the use of this additional grub screw in vertical installations, however, **if the additional grub screw is not to be used, it must be removed from the coupling hub** and an alternate method sought, eg pinning of shaft keys, spacers or clamp design hubs.

Consider mining applications.

In mining applications, it is not permitted to allow dust to enter equipment supplied, therefore any inspection holes in bellhousings must be fitted with solid covers.

Consider pump removal.

GGR bellhousings will be fitted with a centring to enable the pump to be removed without removal of the coupling hub from the pump shaft as standard, where the centring will not interfere with the pump fixing holes. In instances where the diameter of the centring would interfere with the pump fixing holes, provision of a removable pump face on the bellhousing may be required in order to assist with pump removal. This should be requested at time of quotation.



Type	Minimum Bore G	Maximum Bore G	A	B	C	D	E	H	Inertia Kg/M ² Unbored	Weight Kg
JXL 25	12	28	53	25	3	15	80	40	0.0038	1.36
JXL 32	16	38	63	30	3	15	90	53	0.0065	1.93
JXL 42	18	48	85	40	5	25	115	67	0.0186	3.69
JXL 55	20	60	105	50	5	25	135	83	0.0560	7.45
JXL 65	30	73	125	60	5	25	150	98	0.0937	10.64
JXL 80	35	90	155	75	5	30	185	123	0.269	20.34
JXL 90	45	100	165	80	5	40	210	138	0.552	30.26
JXL 100	50	110	185	90	5	50	235	153	0.895	40.53
JXL 120	60	130	225	110	5	50	260	178	1.727	63.35
JXL 148	70	155	256	125	6	65	330	215	5.334	116.82
JXL 160	75	170	276	135	6	65	350	235	6.920	138.03
JXL 170	75	200	326	160	6	70	430	280	17.88	243.00
JXL 190	85	220	386	190	6	80	480	310	31.97	353.00
JXL 210	95	245	406	200	6	80	540	345	51.64	458.00
JXL 240	110	280	510	250	10	100	610	395	106.25	737.00
JXL 270	120	320	570	280	10	105	665	450	168.40	996.00
JXL 300	135	350	630	310	10	105	715	490	238.68	1252.00
JXL 340	150	400	710	350	10	105	845	560	471.60	1846.00



Type	Number of Pins	Torque Nm.		Maximum Power Kw	Maximum Speed RPM
		Cont.	Max.		
JXL 25	2	23.88	47.74	55.00	11,000
	4	47.75	95.50	110.00	
	6	71.63	143.20	164.94	
	8	95.50	191.00	220.00	
JXL 32	3	40.59	81.18	82.46	9700
	6	81.18	162.35	164.90	
	9	121.76	243.53	247.36	
	12	162.35	324.70	329.80	
JXL 42	3	104.57	209.15	166.44	7600
	6	209.15	418.29	332.88	
	9	313.72	627.44	499.32	
	12	418.29	836.58	665.76	
JXL 55	3	122.24	244.48	166.40	6500
	6	244.48	488.96	332.80	
	9	366.72	733.44	499.20	
	12	488.96	977.92	665.60	
JXL 65	4	184.79	369.59	224.46	5800
	8	370.06	740.13	449.50	
	12	554.86	1109.71	673.96	
	16	740.13	1480.25	899.00	
JXL 80	4	371.97	743.95	366.13	4700
	8	743.95	1487.89	732.26	
	12	1115.92	2231.84	1098.39	
	16	1487.89	2975.78	1464.52	
JXL 90	4	774.03	1548.06	664.61	4100
	8	1548.06	3096.11	1329.22	
	12	2322.08	4644.17	1993.83	
	16	3096.11	6192.22	2658.44	
JXL 100	4	1074.38	2148.75	832.50	3700
	8	2148.75	4297.50	1665.00	
	12	3223.13	6446.25	2497.50	
	16	4297.50	8596.00	3330.00	
JXL 120	4	1504.13	3008.25	1039.50	3300
	8	3008.25	6016.50	2097.00	
	12	4512.38	9024.75	3118.50	
	16	6016.50	12033.0	4158.00	

Type	Number of Pins	Torque Nm.		Maximum Power Kw	Maximum Speed RPM
		Cont.	Max.		
JXL 148	4	2912.75	5825.50	15886.00	2600
	8	5825.50	11651.00	3172.00	
	12	8738.25	17476.50	4758.00	
	16	11651.00	23302.00	6344.00	
JXL 160	4	3127.63	6255.25	1637.50	2500
	8	6255.25	12510.50	3275.00	
	12	9259.00	18718.00	4900.00	
	16	12510.50	25002.10	6550.00	
JXL 170	4	4655.63	9311.25	1852.50	1900
	8	9311.25	18622.50	3705.00	
	12	13966.88	27933.75	5557.50	
	16	18622.50	37245.00	7410.00	
JXL 190	4	7401.25	14802.50	2790.00	1800
	8	14802.50	29605.00	5580.00	
	12	22203.75	44407.50	8370.00	
	16	29605.00	59210.00	11160.00	
JXL 210	4	8595.00	17190.00	2880.00	1600
	8	17190.00	34380.00	5760.00	
	12	25785.00	51570.00	8640.00	
	16	34380.00	68760.00	11520.00	
JXL 240	4	15518.75	31037.50	4550.00	1400
	8	31037.50	62075.00	9100.00	
	12	46556.25	93112.50	13650.00	
	16	62075.00	124150.00	18200.00	
JXL 270	4	19338.75	38677.50	4860.00	1200
	8	38677.50	77355.00	9720.00	
	12	58016.25	116032.00	14579.94	
	16	77355.00	154710.00	19440.00	
JXL 300	5	26453.50	52907.00	5540.00	1000
	10	52907.00	105814.00	11080.00	
	15	79398.70	158797.40	16628.00	
	20	105909.50	211819.00	22180.00	
JXL 340	6	38677.50	77355.00	7290.00	900
	12	77355.00	154710.00	14580.00	
	18	116032.50	232065.00	21870.00	
	24	154710.00	309420.00	29160.00	



Installation and Maintenance Instructions for JXL Resilient P.B. Couplings

This guide is for the installation of JXL couplings when a bellhousing is not used and covers the assembly of the coupling individual components.

Ensure each flange is clean. Fit each flange to their respective shafts. Line-up coupling flanges by checking dimensions between flange faces at 90° intervals and by using a straight edge across the outside diameter of flanges at 90° intervals. If possible a dial test indicator may be used to give accurate details of alignment. The flanges should be aligned to within the following tolerances noting that where one misalignment is present then the others must be reduced proportionally. **Careful alignment will extend coupling life.**

Parallel Misalignment

JXL 25 JXL 32	JXL 42 JXL 65	JXL 80 JXL 120	JXL 148 JXL 160	JXL 170 JXL 240	JXL 270 JXL 340
0.12	0.25	0.37	0.50	0.62	0.75

Angular Misalignment

All couplings, plus or minus 0.375° per hub maximum, 0.75° total.

Axial Misalignment

All couplings plus or minus 50% of flange gap (dimension C)

When the coupling hubs are within the correct alignment fit the coupling pins, liners and resilient elements ensuring that each pin assembly has three washers fitted; one under the cap screw head and one at either end of the element. The pins should be fitted with the self locking nut adjacent to the resilient element. Where half or less number of pin assemblies are being used, all elements should be fitted into one flange. When all pin assemblies are fitted tighten the self locking nuts in pairs at 180° to each other to the correct torque.

Tightening Torques for JXL Resilient Couplings Maintenance

Coupling Size	Screw Size	Tightening Torque		Coupling Size	Screw Size	Tightening Torque	
		Nm	lb/ft			Nm	lb/ft
25	M5	5.08	3.75	148	M16	187.00	138.00
32	M5	5.08	3.75	160	M16	187.00	138.00
42	M6	9.20	6.80	170	M16	187.00	138.00
55	M6	9.20	6.80	190	M20	337.00	249.00
65	M6	9.20	6.80	210	M20	337.00	249.00
80	M10	41.00	30.00	240	M24	568.00	419.00
90	M10	41.00	30.00	270	M30	1144.00	835.00
100	M12	77.00	57.00	300	M30	1144.00	835.00
120	M12	77.00	57.00	340	M30	1144.00	835.00

Periodically check flange alignment and resilient elements for wear.

Note

All JXL couplings are capable of accepting a momentary overload of twice nominal torque and have an operating temperature range of -50°C to +105°C.



This guide is for the installation of JXL couplings when a bellhousing is used.

Coupling pins are tightened to the correct torque prior to leaving our premises; these values should be re-checked prior to installation. Under no circumstances should the couplings be assembled with the pins tightened to any torque other than the specified values.

Fit the relevant coupling hub onto the motor shaft. As a general rule the face of the coupling flange will be flush with the end of the motor shaft with any necessary offset being applied to the hub fitted to the pump shaft. In any case the correct setting distance must be maintained, tighten grub screw(s) and re-check the setting distance.

Fit the pump centring to the pump (when supplied) then fit the relevant coupling hub to the pump shaft, position the hub suitably to obtain the correct setting distance, tighten grub screw(s) or clamp screw(s) if the pump has a spline shaft, and re-check the setting distance.

When the coupling assembly is to be mounted in a vertical position, we strongly recommend the use of the additional grub screw positioned at 90 degrees to the key slot, to reduce the risk of the coupling hubs creeping down the shafts.

If the additional grub screw is not to be used it must be removed from the coupling hub.

Assemble the pump and motor to the bell housing ensuring that there is no loose matter i.e. grub screws washers etc remaining inside the housing and that no rotating component is within 5.0mm of any non rotating part.

Tighten all bolts to the correct torque values. We recommend the use of shake proof washers with all bolts.

Tightening Torques for JXL Resilient Couplings Maintenance

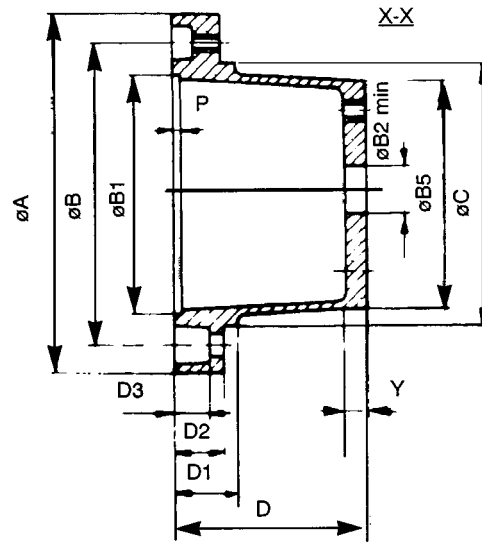
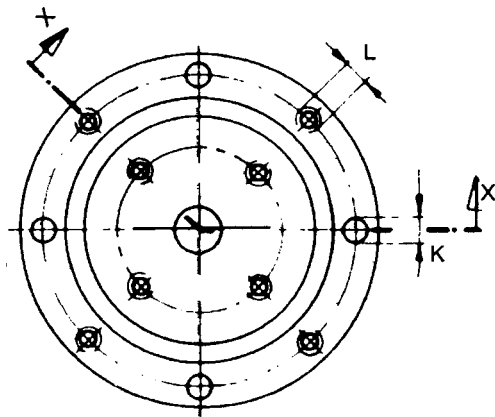
Coupling Size	Screw Size	Tightening Torque		Coupling Size	Screw Size	Tightening Torque	
		Nm	lb/ft			Nm	lb/ft
25	M5	5.08	3.75	148	M16	187.00	138.00
32	M5	5.08	3.75	160	M16	187.00	138.00
42	M6	9.20	6.80	170	M16	187.00	138.00
55	M6	9.20	6.80	190	M20	337.00	249.00
65	M6	9.20	6.80	210	M20	337.00	249.00
80	M10	41.00	30.00	240	M24	568.00	419.00
90	M10	41.00	30.00	270	M30	1144.00	835.00
100	M12	77.00	57.00	300	M30	1144.00	835.00
120	M12	77.00	57.00	340	M30	1144.00	835.00

Axial Misalignment

All couplings plus or minus 50% of flange gap (dimension C) setting distance.

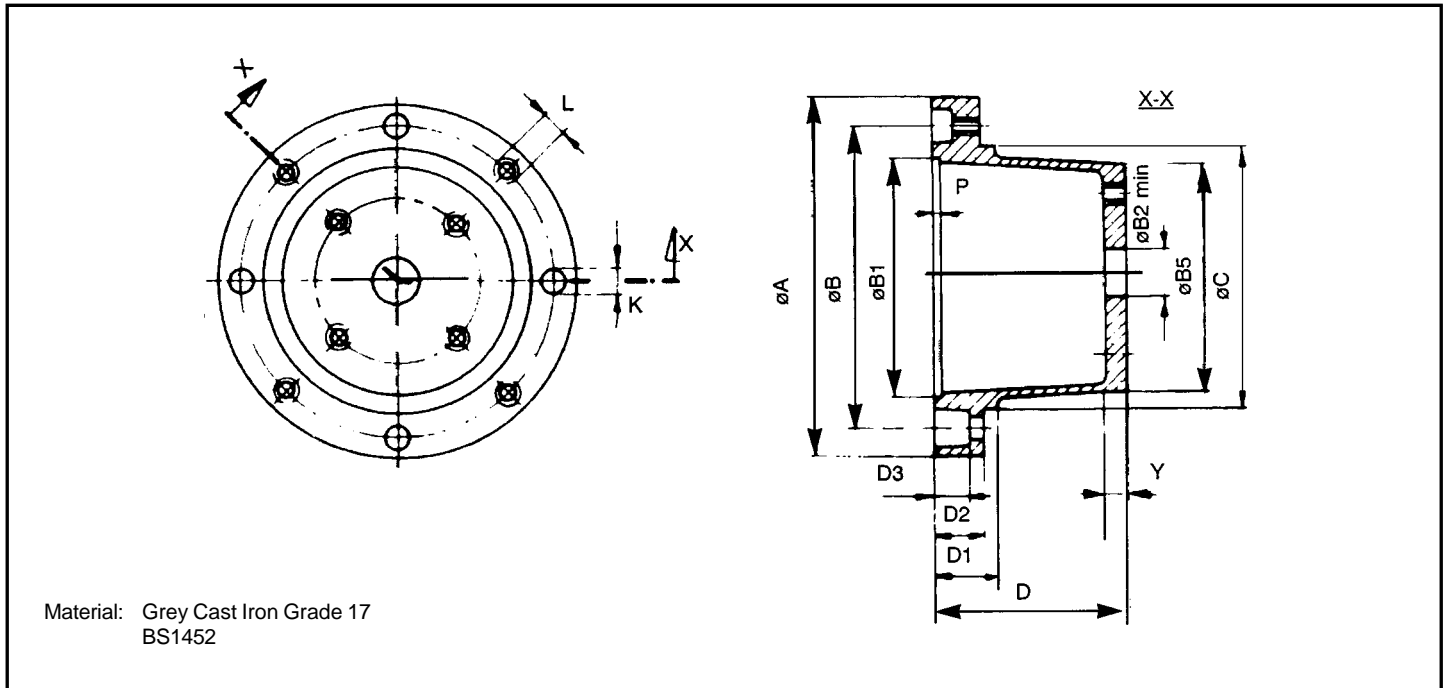
Periodically check flange alignment and resilient elements for wear.

All JXL couplings are capable of accepting a momentary overload of twice nominal torque and have an operating temperature range of -50°C to +105°C.

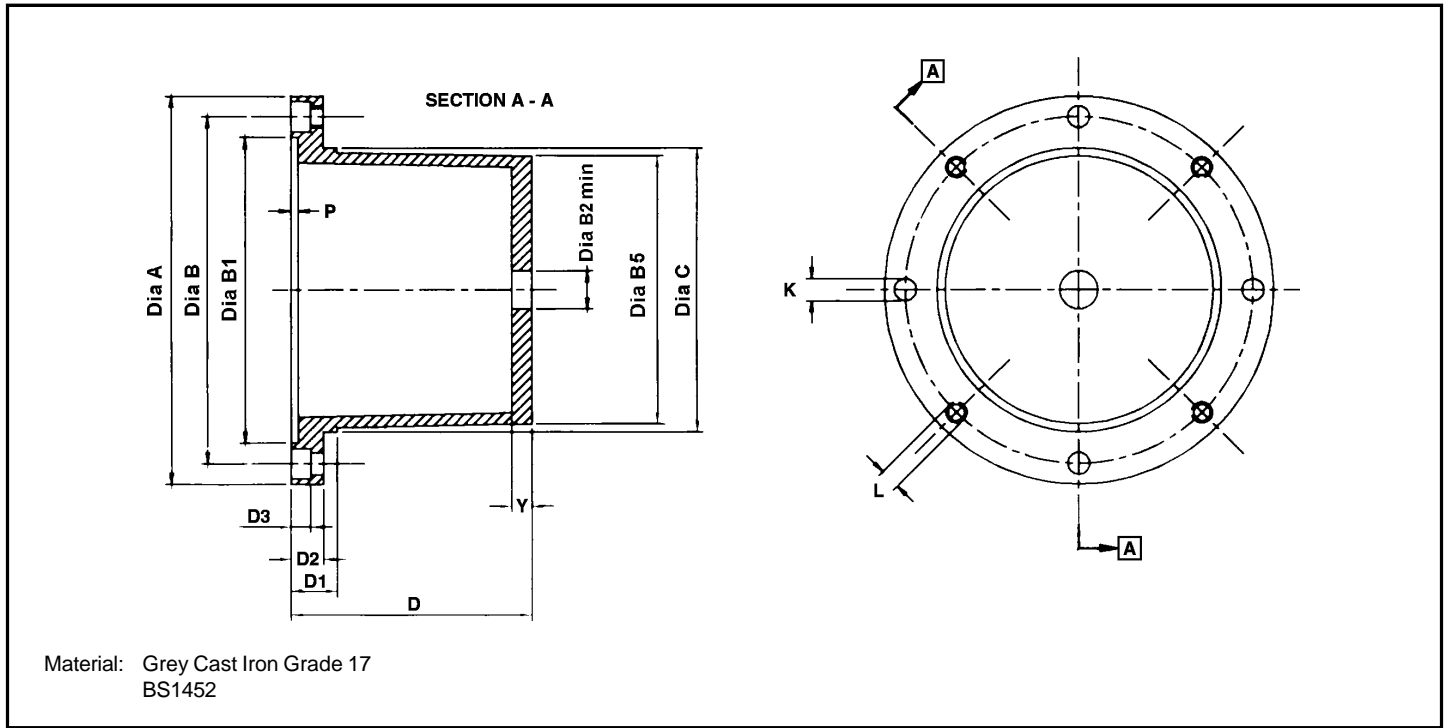


Material: Grey Cast Iron Grade 17
BS1452

Electric Motor Detail		Bellhousing Reference	Dimensions in mm													
Frame Size (D/E)	N.C.B Specification		A	B	B ₁	B _{2 min}	B ₅	C	D	D ₁	D ₂	D ₃	K	L	P	Y
80		GGR200/---/080	200	165	130	35	128	145	80	30	20	14	4 x 11	4 x M10	5	14
		GGR200/---/084							84							18
		GGR200/---/095							95							14
		GGR200/---/100							100							18
		GGR200/---/108							108							14
90		GGR200/---/115	200	165	130	35	128	145	115	30	20	14	4 x 11	4 x M10	5	18
		GGR200/---/120							120							14
		GGR200/---/124							124							18
		GGR200/---/135							135							14
100	542/1969	GGR250/---/095	250	215	180	35	180	190	95	30	20	14	4 x 14	4 x M12	5	14
		GGR250/---/115					180		115							
		GGR250/---/135					178		135							
		GGR250/---/160					178		160							
		GGR250/---/190					176		190							
132	542/1969	GGR300/---/115	300	265	230	35	224	234	115	35	22	14	4 x 14	4 x M12	5	16
		GGR300/---/135					222		135							
		GGR300/---/160					222		160							
		GGR300/---/190					219		190							
		GGR300/---/210					218		210							
		GGR300/---/235					217		235							
160 180	542/1969	GGR350/---/145	350	300	250	35	250	260	145	42	30	18	4 x 18	4 x M16	6	18
		GGR350/---/165					248		165							
		GGR350/---/200					246		200							
		GGR350/---/220					245		220							
		GGR350/---/240					244		240							
		GGR350/---/265					243		265							
		GGR350/---/280					242		280							



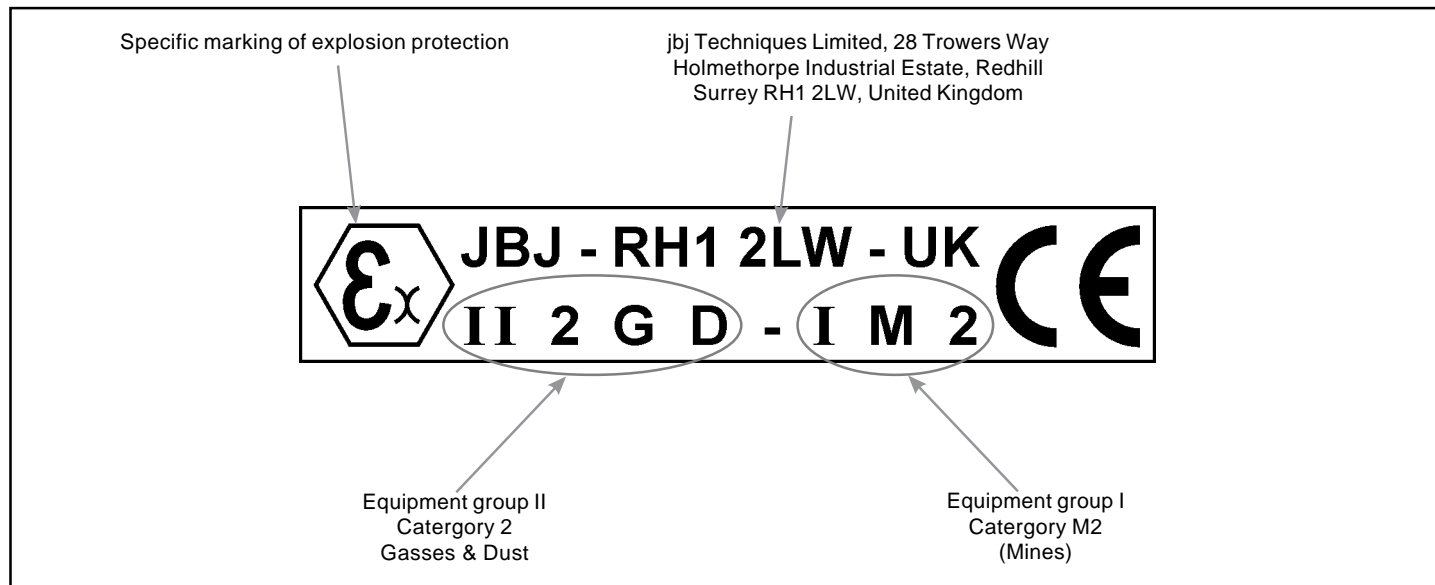
Electric Motor Detail		Bellhousing Reference	Dimensions in mm													
Frame Size (D/E)	N.C.B Specification		A	B	B ₁	B _{2 min}	B ₅	C	D	D ₁	D ₂	D ₃	K	L	P	Y
200	542/1969	GGR400/---/145	400	350	300	80	289	300	145	42	30	18	4 x 18	4 x M16	6	20
		GGR400/---/165					287		165							
		GGR400/---/190					286		190							
		GGR400/---/215					285		215							
		GGR400/---/235					283		235							
		GGR400/---/260					281		260							
		GGR400/---/275					281		275							
		GGR400/---/300					280		300							
225		GGR450/---/200	450	400	350	80	336	350	200	48	35	18	8 x 18	8 x M16	6	20
		GGR450/---/230					334		230							
		GGR450/---/270					332		270							
		GGR450/---/310					330		310							
		GGR450/---/350					327		350							
250 280	291/1980	GGR550/---/190	550	500	450	100	435	450	190	45	30	18	8 x 18	8 x M16	6	20
		GGR550/---/230					432		230							
		GGR550/---/260					430		260							
		GGR550/---/290					428		290							
		GGR550/---/310					426		310							
		GGR550/---/350					423		350							
315		GGR660/---/290	660	600	550	125	527	550	290	40	30	22	8 x 24	8 x M20	7	24
		GGR660/---/330					525		330							
		GGR660/---/350					523		350							
	420/1964	GGR655/---/215	655	613	546.1	125	532	550	215	40	30	22	8 x 24	8 x M20	10	24
		GGR655/---/250					530		250							
		GGR655/---/270					528		270							
355		GGR800/---/355	800	740	680	100	648	700	355	60	50	25	8 x 22	8 x M20	10	28
		GGR800/---/380					640		380							
		GGR800/---/400					638		400							



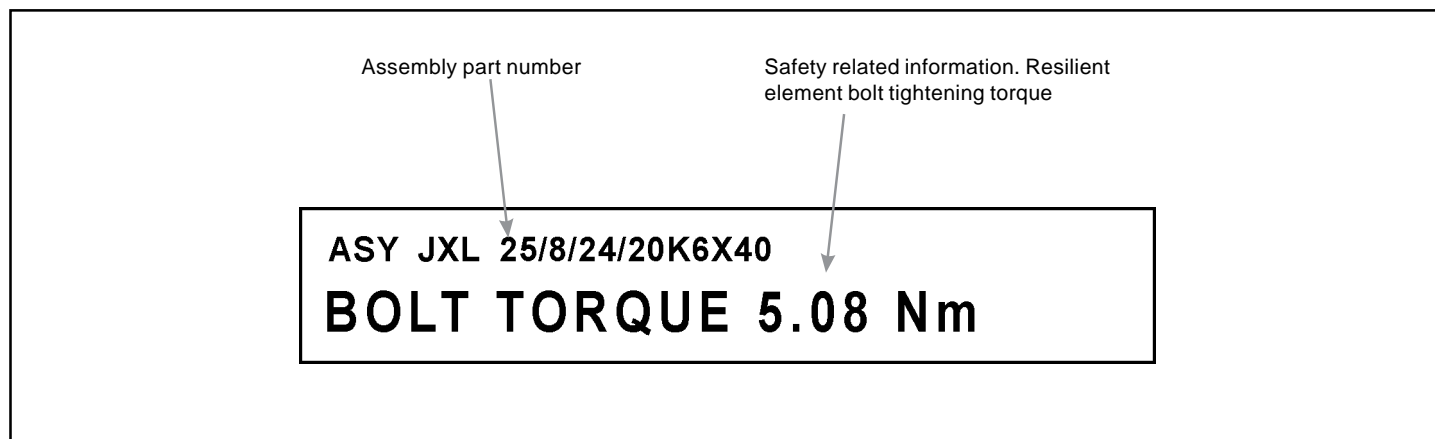
Bellhousing Reference	Dimensions in mm													
	A	B	B ₁	B _{2 min}	B ₅	C	D	D ₁	D ₂	D ₃	K	L	P	Y
GGR280/---/095	280 (11")	254 (10")	228.6 (9")	35	224	235	95	30	20	14	4 x 14	4 x ½" UNC	7	14
GGR280/---/115					222		115							
GGR280/---/135					220		135							
GGR280/---/160					217		160							
GGR280/---/190					214		190							
GGR355/---/145	355 (14") Nom.	317.5 (12½")	279.4 (11")	35	250	260	145	42	30	18	4 x 20	4 x ¾" UNC	7	18
GGR355/---/165					248		165							
GGR355/---/200					246		200							
GGR355/---/220					245		220							
GGR355/---/240					244		240							
GGR355/---/265					243		265							
GGR355/---/280	242	280												
GGR458/---/200	458 (18") Nom	406.4 (16")	355.6 (14")	80	336	350	200	48	35	18	4 x 20	4 x ¾" UNC	7	20
GGR458/---/230					334		230							
GGR458/---/270					332		270							
GGR458/---/310					330		310							
GGR458/---/350					327		350							
GGR558/---/190	558 (22") Nom	508 (20")	457.2 (18")	100	435	450	190	45	30	18	8 x 20	8 x ¾" UNC	7	20
GGR558/---/230					432		230							
GGR558/---/260					430		260							
GGR558/---/290					428		290							
GGR558/---/310					426		310							
GGR558/---/350					423		350							



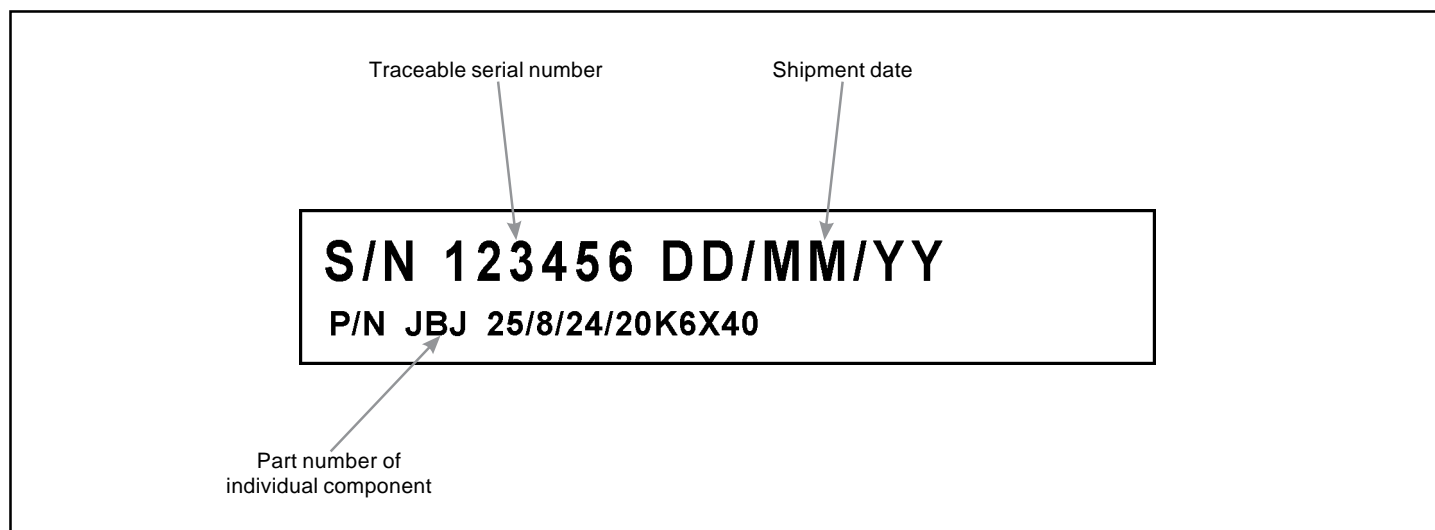
Type 1



Type 3

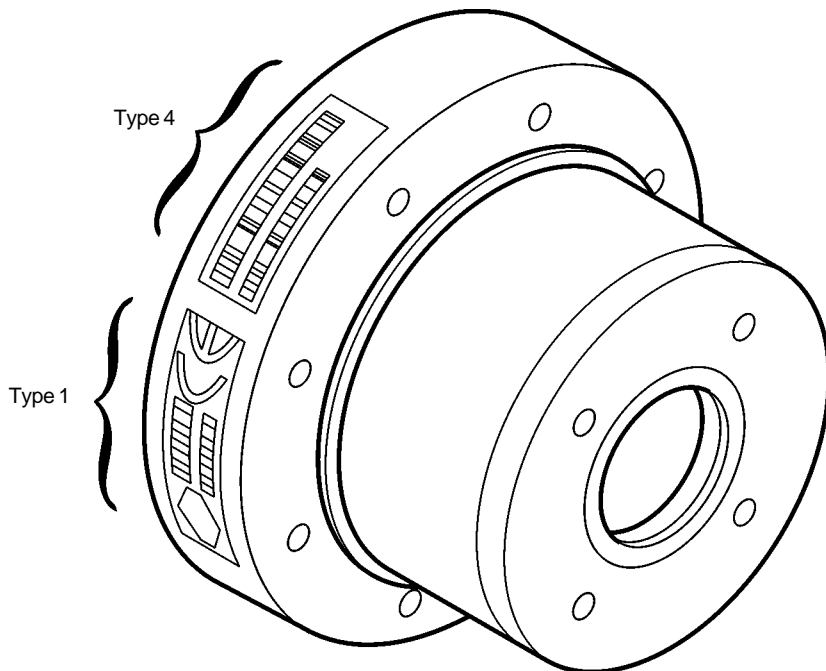
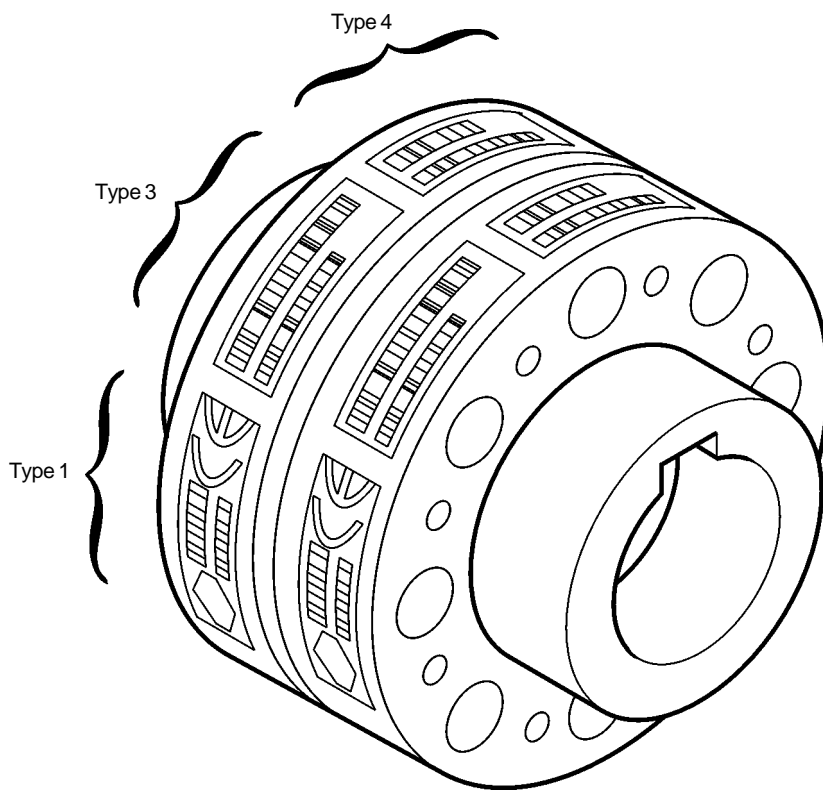


Type 4





Label positions for GGR Housings & JXL Couplings





Our water-oil Heat Exchangers are normally used for the cooling of hydraulic oil and are installed on the return line of the system or a separate circuit.

The range comprises a choice of highly efficient models. The range utilises high quality materials and is manufactured using precision machinery, resulting in an extremely reliable product.

The heat exchangers are available with water circuits of 1, 2 or 4 passes. They can be supplied with thermostatic valves which greatly assist in the reduction of water consumption.

Compatible Fluids

- Mineral oils HL-HLP
- Mixture water/oil
- Water/glycolic acid
- Water/industrial water
- For other fluids contact jbj Techniques Limited technical office, telephone: 01737 767493 or email: info@jbj.co.uk

Technical Specification

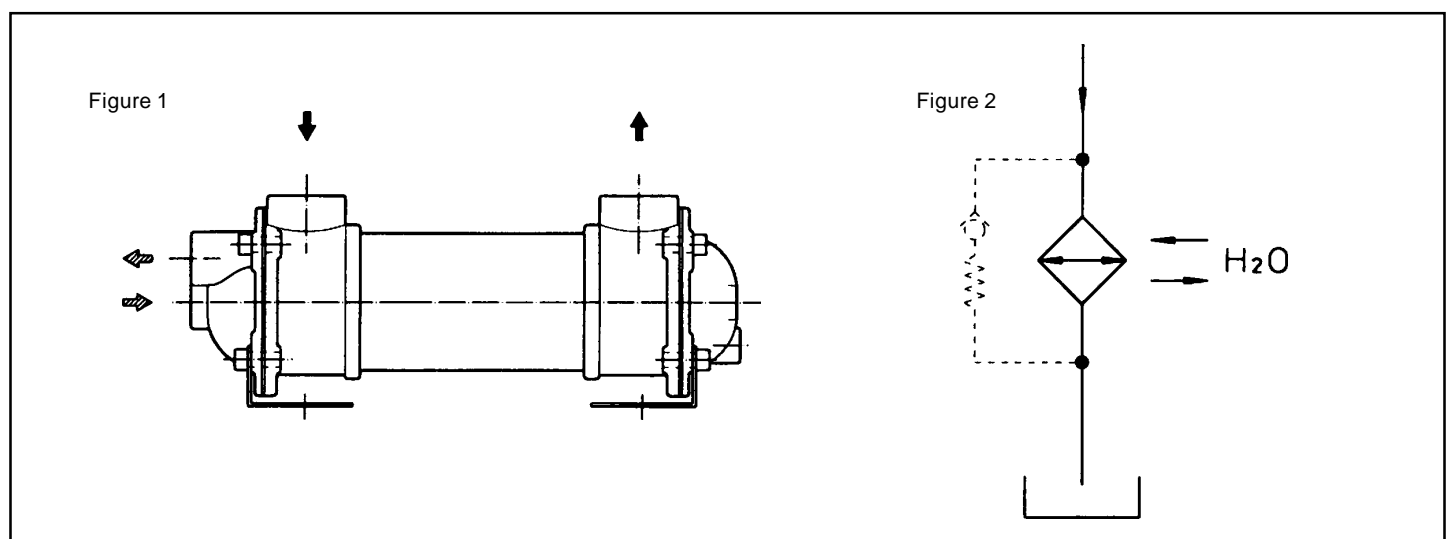
- Version: fresh water - sea water - AISI
- Operating pressure: 12 bar
- Test pressure: 18 bar
- Maximum operating temperature: 120°C

Installation

The correct position of inlet of the two fluids is indicated in figure 1. They should circulate in the opposite direction, in order to obtain the maximum heat exchange.

The assembly of the heat exchanger on the machine should be carried out using appropriate flexible supports. Water and oil service connections should be made using flexible tubing. It is advisable to install a by-pass valve to prevent damage caused by pressure spikes, figure 2.

At very low temperatures, it is advisable to keep the water in constant circulation to prevent ice damage, otherwise drain the exchanger by use of the discharge valve when not in use.



Maintenance

Water side cleaning - To maintain the maximum effectiveness of the exchanger, periodic inspection of the water circuit is advisable to eliminate all traces of lime or any other impurities, which might be deposited inside the tubes.

This operation can be easily accomplished by removing the headers and flushing out the tubes.

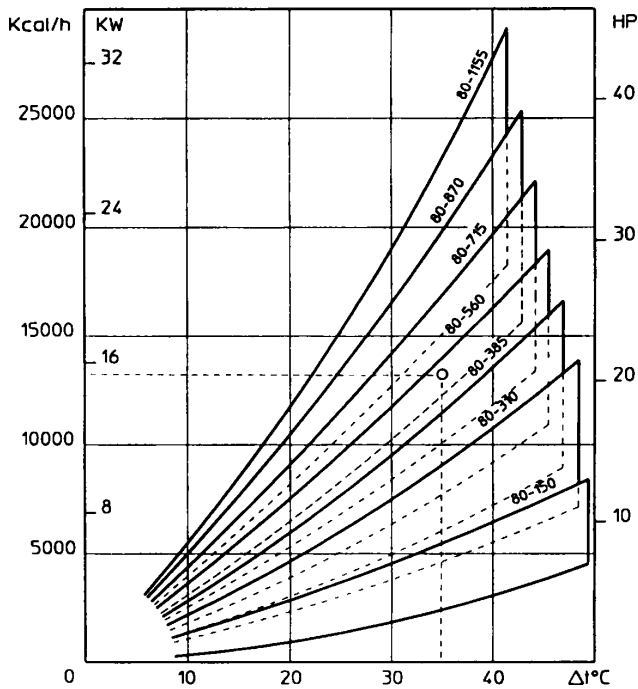
Oil side cleaning - In this part of the circuit, the cleaning will be carried out through the circulation of perchloride in the opposite direction of the normal flow, for about thirty minutes.



Data Relating to Heat Exchanger Selection

Oil flow: 60 l/min
 Specific weight: 0.88 kg/dm³
 Specific heat: 0.49 kcal/kg °C
 Viscosity: 32 cst
 Oil temperature: 55°C
 Water temperature: 20°C
 Cooling power: 15 kW

Knowing the viscosity and flow rate of the oil, cooling power and stability of Δt (in running temperature of oil - water temperature) you can adjust these calculations to the specifications given in this catalogue.



Type	Oil Flow	HP Dissipated with Oil = 55°C H ₂ O = 20°C
MG 80 - 150 - ...	25 - 75	4 - 8
MG 80 - 310 - ...	25 - 80	7 - 14
MG 80 - 385 - ...	25 - 80	9 - 17
MG 80 - 560 - ...	25 - 80	12 - 20
MG 80 - 715 - ...	35 - 120	15 - 24
MG 80 - 870 - ...	40 - 130	18 - 29
MG 80 - 1155 - ...	40 - 130	22 - 36

Selected exchanger results in the model MG-80-715-4.

The marked dissipation on the exchange diagram expressed in HP, kW and kcal/h will be determined, with a viscosity of 32 cst and water flow as indicated in the following table A:

Required water flow

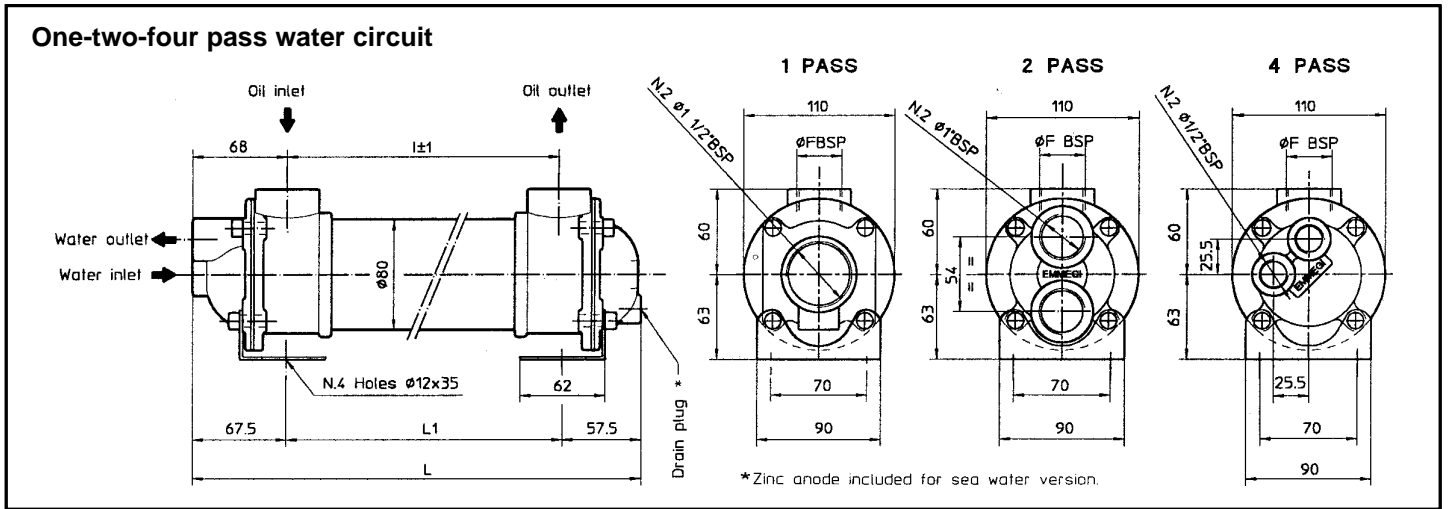
Number of water circuits	l/min x any HP to be dissipated
1	3
2	2
4	1

Cooling power correction factor

Water Flow	Correction Factor
Flow shown in table A	1
Flow shown in table A x 2	1.2
Flow shown in table A x 3	1.4

Water Temperature	Correction Factor
20°C	1.00
25°C	0.85
30°C	0.70
35°C	0.60

If in doubt, please contact **jbj Techniques Limited technical office**, telephone: 01737 767493 or email: info@bjj.co.uk



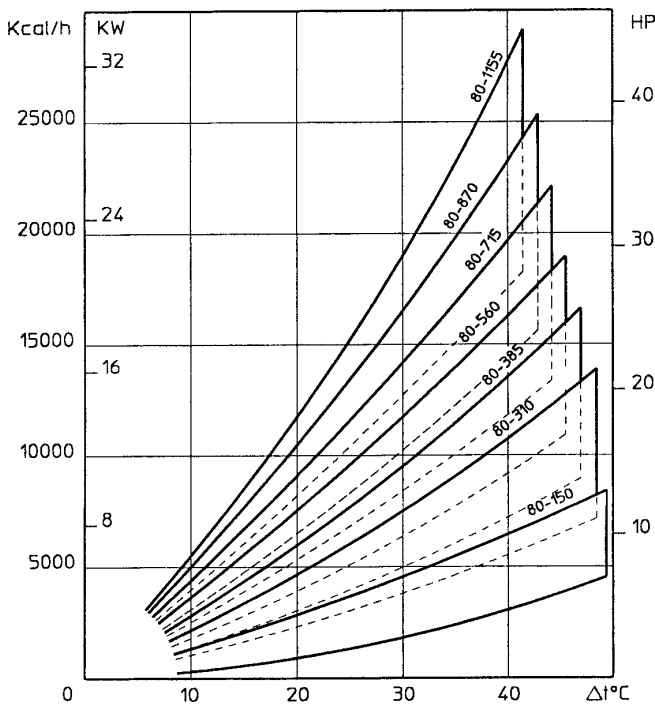
Type	Tubes	Tubes Sheet	Baffles	Covers	Shell	Seal
Standard	CuDHP	CuZn40	CuZn37	CuZn40	Fe510.2	Rubber-Cork
Sea Water	CuNi10Mn1Fe					

Type	Oil Flow Litres/min	HP Dissipated with Oil	Contents Litres	Weight Kg	Dimensions (in mm unless otherwise stated)											
					1 Pass				2 Pass				4 Pass			
					ϕF	I	L	L1	ϕF	I	L	L1	ϕF	I	L	L1
MG 80-150	25 - 75	4 - 8	0.65	4.5	1"gas	150	320	148	1"gas	150	275	148	1"gas	150	273	148
MG 80-310	25 - 80	7 - 14	1.10	5.7	1"gas	310	480	308	1"gas	310	435	308	1"gas	310	435	308
MG 80-385	25 - 80	9 - 17	1.30	6.0	1"gas	385	555	383	1"gas	385	510	383	1"gas	385	510	383
MG 80-560	25 - 80	12 - 20	1.90	7.5	1"gas	560	730	558	1"gas	560	785	558	1"gas	560	685	558
MG 80-715	35 - 120	15 - 24	2.30	8.0	1"gas	715	885	713	1"gas	715	840	713	1"gas	715	840	713
MG 80-870	40 - 130	18 - 29	2.80	10.0	1"gas	870	1040	868	1"gas	870	995	868	1"gas	870	995	868
MG 80-1155	40 - 130	22 - 36	3.70	13.5	1"gas	1155	1325	1153	1"gas	1155	1280	1153	1"gas	1155	1280	1153

The dissipation, indicated with HP in the schedule, takes place when the inlet oil reaches a temperature of 55°C, with a viscosity of 5°E, and the temperature of cooling water is 20°C with a flow of 1 litre/min each HP to be dissipated.

Performance Diagram

At the maximum and minimum flow stated in schedule



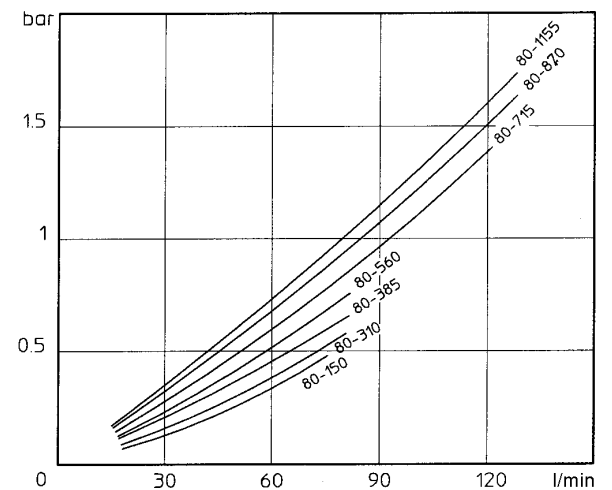
Correction Factor (F)

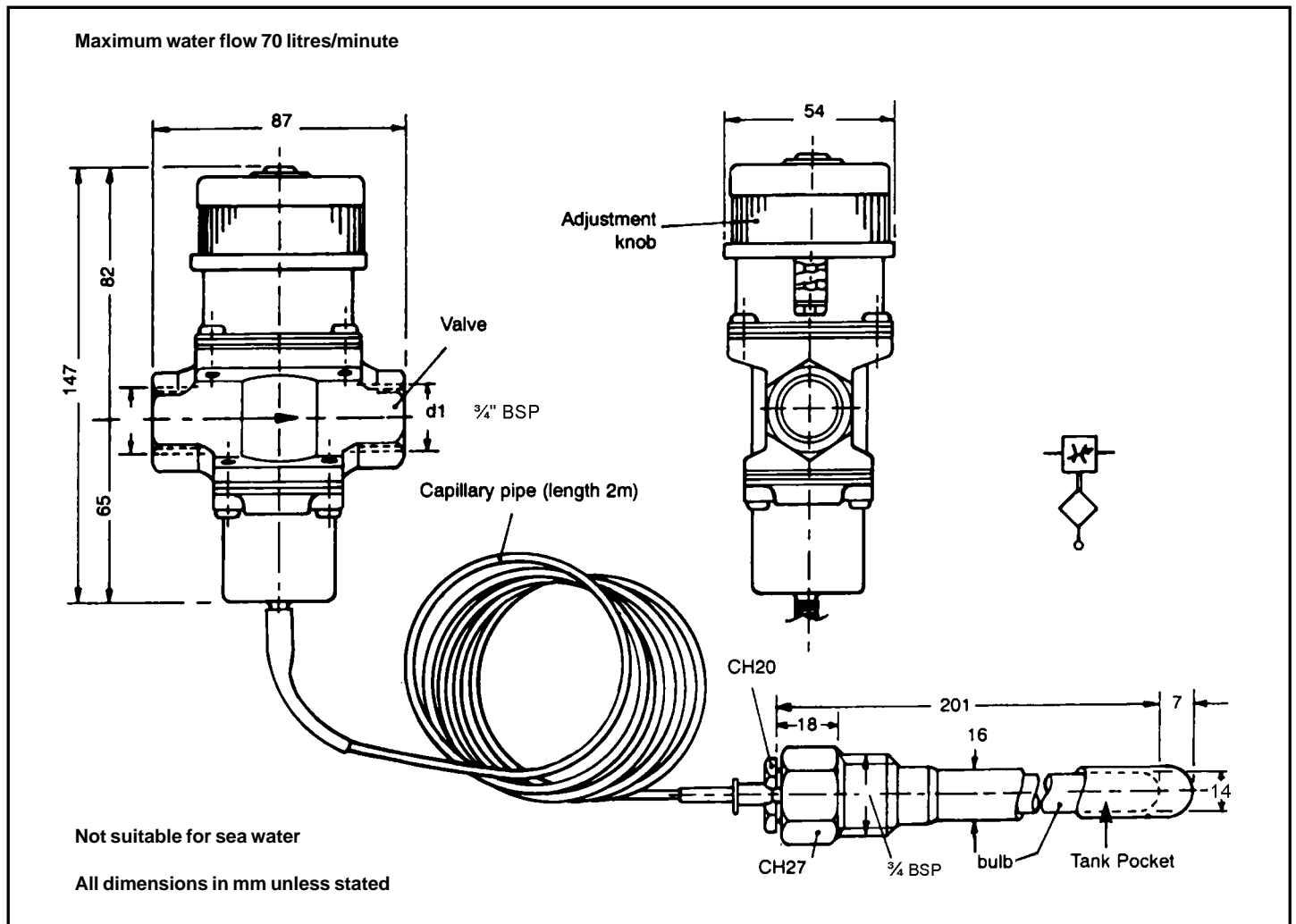
Pressure Drop

CST	10	15	20	30	40	50	60	80	100	200	300
F	0.5	0.65	0.77	1.0	1.2	1.4	1.6	1.9	2.1	3.3	4.3

Pressure Drop

(32cSt)





Instructions for Installations and Use

During the valve installation, never strain the fittings, to avoid deterioration of threads or possible gas or oil losses.

In order to avoid incorrect operation the sensor element (bulb) must always be fitted below the valve body.

The capillary tube, between bulb and valve body, should not be deformed by too narrow bends or angles, to allow free gas passage.

The valve is adjusted in order to begin the opening phase around 77°F and to complete it around 122°F. Remaining in this range of values, to increase the opening temperature slightly turn adjusting knob clockwise.

If water leakage takes place after the valve has been closed for a time, turn the adjusting knob clockwise until the leak stops.

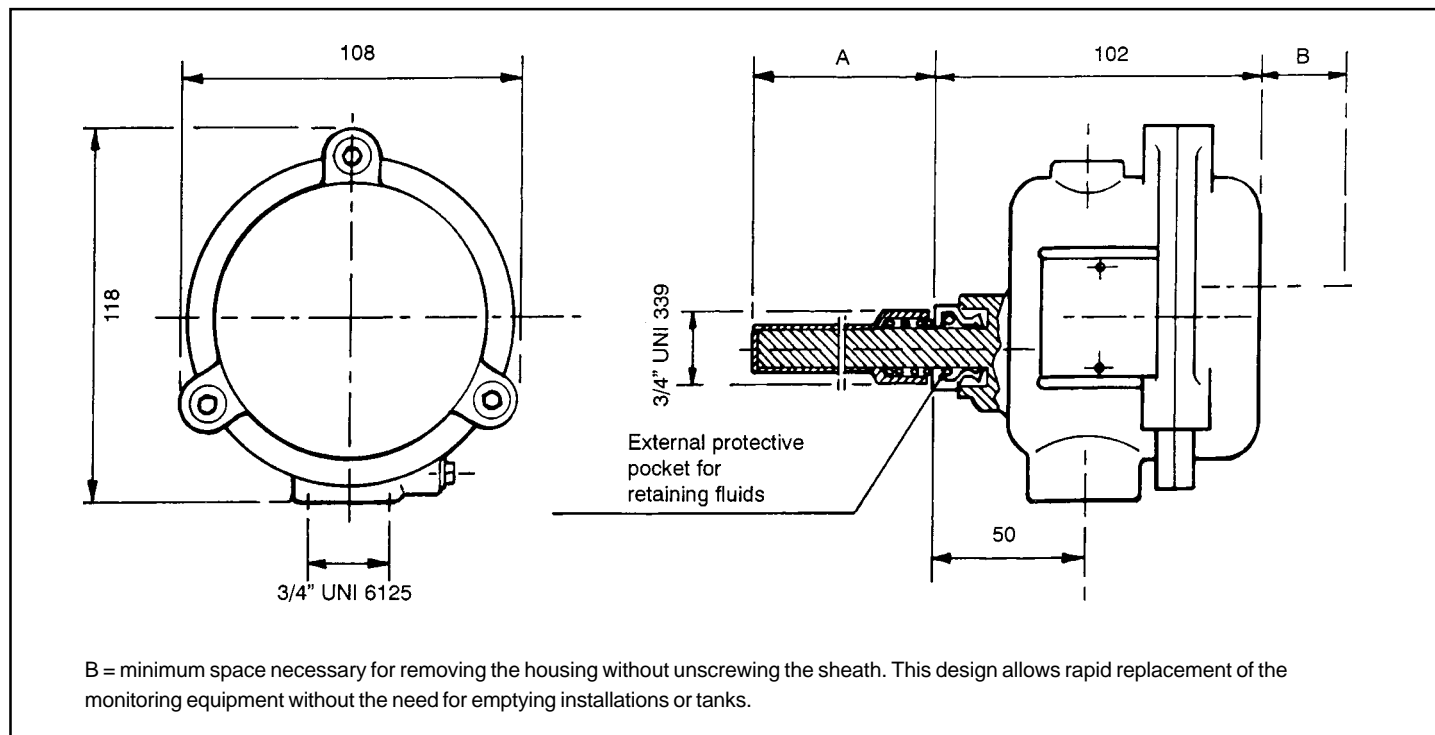
Note: Periodically check that no calcereous deposits have built up in the system.



Thermostat with expanding liquid probe, particularly suitable for automatic setting of the temperature of liquids as well as other applications in the field of industrial heating. Temperature setting is only possible when the housing is open. This operation must not be carried out when the equipment is live. In no circumstances when there is dangerous atmosphere present. Internal setting prevents unauthorised or accidental adjustment.

Rating Plate Data

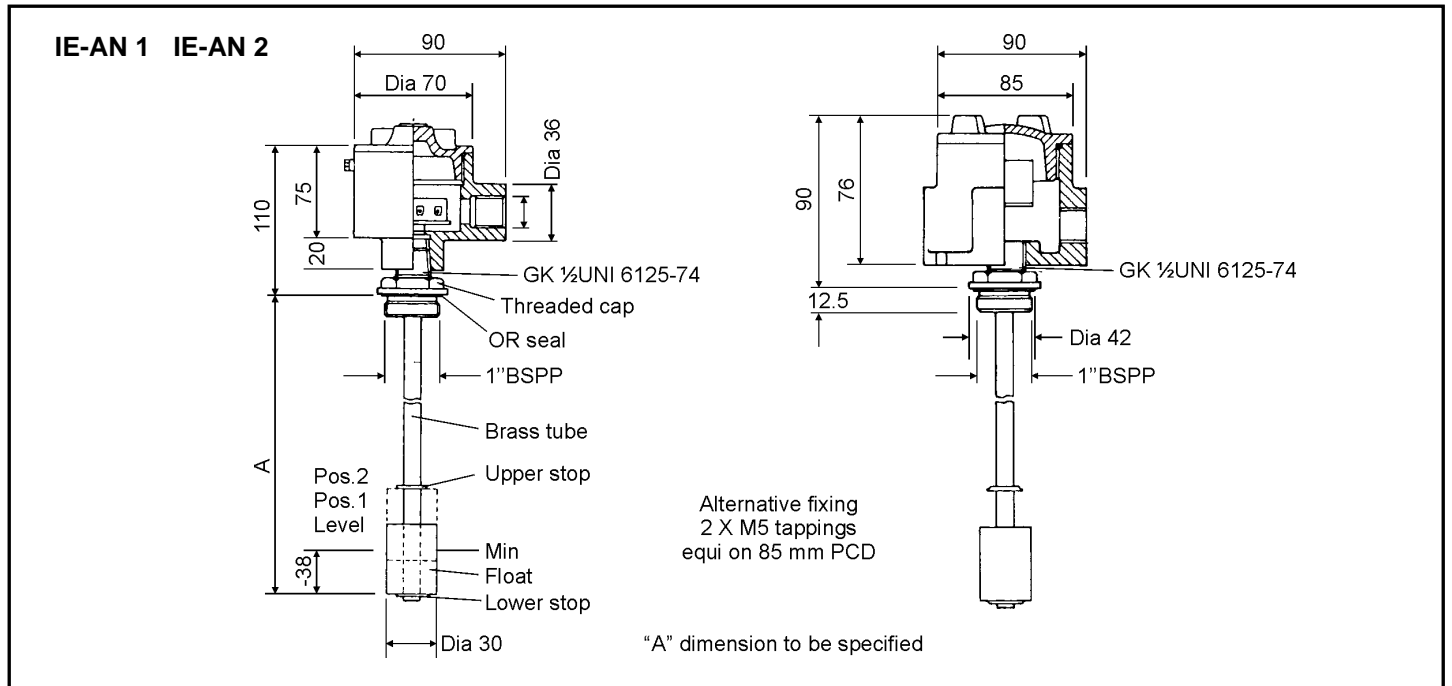
Protection code: EEx d
 Class: 1 - Hz
 Temperature Class: T6
 Degree of Protection: IP 65
 Maximum Current: 10 A
 Maximum Voltage: 380 V AC
 Maximum Temperature Setting: 350°C
 Certified: CESI AD 87.8.116X
 Contact Switched



Type	Setting Range in °C	Maximum Temperature of Bulb in °C	Differential Δ t = °C	A	B
TRI 40	0 - 40	50	2	84	100
TRI 90	0 - 90	150	3	88	104
TRI 120	0 - 120	150	3	88	104
TRI 210	0 - 210	270	6 - 8	160	184
TRI 300	0 - 300	350	6 - 11	184	200

Thermostats with setting ranges other than those shown in the table can be supplied on request.

External sheath in tropicalised brass OT 58 - UNI 2012.
 Stainless steel AISI 303 or AISI 316 on request.



Electrical Characteristics

- Switchable power in DC 60 W
- Switchable power in AC 80 VA
- Current intensity in DC or AC 1.3/2A
- Voltage 250 V switchable
- Frequency 50 Hz
- Capacity of open contacts 4pF
- Insulation resistance minimum $10^{11}\Omega$
- Rhodium REED contacts
- SPDT switch REED contacts
- Temperature range -20° to $+100^{\circ}\text{C}$
- For inductive circuits, use protective circuits.

Flame Proof Head

- Rated voltage: 380 - 1000V ac
- Rated current: 16A
- Rated frequency: 50/60 Hz
- Terminal section 4 - 6 mm
- Protection IP66

Duty

Connecting head made in cast steel according to European standards EN 50014, EN 50018 EEX DII CT 6 [zone 1](alternative specification available on request) as covered by certificates CESI AD 82.072. Suitable for hazardous environments where the saturation of gaseous vapours or substances that combine in air are liable to cause explosions. i.e. in the chemical, pharmaceutical or dye industries, oil rigs, etc.

Operation

When the float meets the REED switch incorporated in the tube at the predefined distance, the contacts controlled by the magnet contained in the float open or close and can thus send a remote signal in the form of a light or audible alarm, or can switch off any connected electrical equipment.

Fitting

The gauge must be fitted vertically in a 1" BSPP threaded hole. The float must be at least 35 mm away from any ferrous surfaces eg. tank walls.

Availability

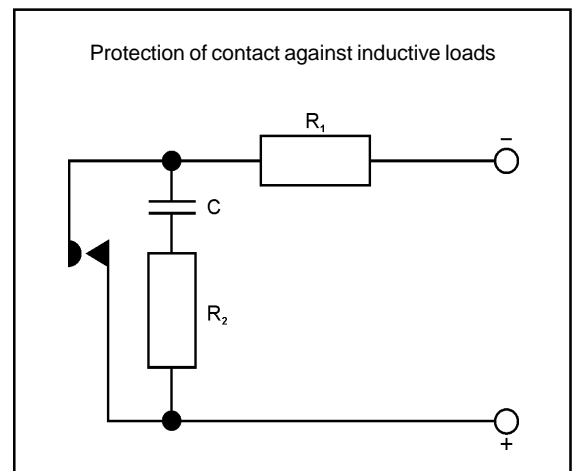
Dimension A - 100/200/300/400/500

For special sizes, the gauges can be made to order with the same characteristics as the standard range.

Note

To change the contact from NC to NO, simply remove the bottom stop and invert the float. Check the distance from ferrous bodies, which must not be less than 35 mm. Service temperature of electrical level gauge -20°C to $+100^{\circ}\text{C}$.

Cable inlets must be in accordance with standards DENELEC 50014 - EN50018.





Gear Pumps/Motors



Mini Power Packs



Screw Pumps



LSHT Motors/Geared Motors



Coolers



BD Clutches & Gearboxes



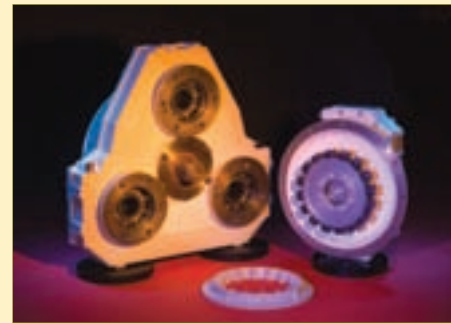
BDS Clutches



Planetary Gearboxes



Marine Gearboxes



Splitter Gearboxes



Hydraulic Adaptors



Torsional Couplings



Pressure Intensifiers



Bellhousings



Torsionally Flexible Couplings



Torsionally Rigid Couplings



FD20 Data Logging Device



quality products for mechanical & fluid power

www.jbj.co.uk/productlist.html



Torque Limiting Couplings



Dampers



Tanks/Accessories



ATEX Approved



Flanges



Engine Adaptor Kits



Flow Dividers