



Product Catalogue

Tel: 051 - 432 8777



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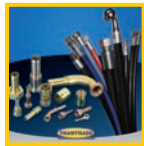
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General Information

Pressure Conversion Tables (approximate)

Bar	KPa	MPa	PSI	Bar	KPa	MPa	PSI
1	100	0.1	14.2	310	31000	31	4409
2	200	0.2	28.4	320	32000	32	4551
3	300	0.3	42.7	330	33000	33	4693
4	400	0.4	56.9	340	34000	34	4835
5	500	0.5	71.1	350	35000	35	4978
6	600	0.6	85.3	360	36000	36	5120
7	700	0.7	99.6	370	37000	37	5262
8	800	0.8	113	380	38000	38	5404
9	900	0.9	128	390	39000	39	5547
15	1500	1.5	213	410	41000	41	5831
20	2000	2	284	420	42000	42	5973
30	3000	3	426	430	43000	43	6115
40	4000	4	568	440	44000	44	6258
50	5000	5	711	450	45000	45	6400
60	6000	6	853	460	46000	46	6542
70	7000	7	995	470	47000	47	6684
80	8000	8	1137	480	48000	48	6827
90	9000	9	280	490	49000	49	6969
110	11000	11	1564	510	51000	51	7253
120	12000	12	1706	540	54000	54	7680
130	13000	13	1849	550	55000	55	7822
140	14000	14	1991	560	56000	56	7964
150	15000	15	2133	570	57000	57	8107
160	16000	16	2275	580	58000	58	8249
170	17000	17	2417	590	59000	59	8391
180	18000	18	2560	600	60000	60	8533
190	19000	19	2702	610	61000	61	8676
210	21000	21	2986	630	63000	63	8960
220	22000	22	3129	640	64000	64	9102
230	23000	23	3271	650	65000	65	9245
240	24000	24	3413	660	66000	66	9387
250	25000	25	3555	670	67000	67	9529
260	26000	26	3698	680	68000	68	9671
270	27000	27	3840	690	69000	69	9813
280	28000	28	3982	700	70000	70	9956
290	29000	29	4124	710	71000	71	10098
300	30000	30	4266	720	72000	72	10240
				730	73000	73	10382
				740	74000	74	10525
				750	75000	75	10667
				800	80000	80	11378
				850	85000	85	12089
				900	90000	90	12800
				950	95000	95	13511
				1000	100000	100	14223

1 Bar = 14.223 PSI

1 Bar = 100Kpa











1 Bar = 0.1 MPA



General Information

Thread Style Pressure Performance/Maximum Operating Pressure


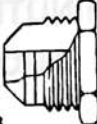





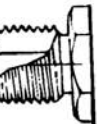
The following table is a breakdown of hydraulic pressure performance by thread style and size for steel products. The table is based on limited laboratory test data and is intended only as an approximate guide to field performance of Eaton Aeroquip products. Figures shown are maximum operating pressures in psi, based upon a 4:1 safety factor relative to the connection minimum burst pressure. Testing was conducted at SAE recommended assembly torque in hardened test blocks. The pressure rating must be adjusted for any change in mating part material. The maximum operating pressure for the adapter of tubr fitting body must be the lower of the chosen mating end types.

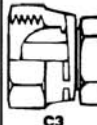





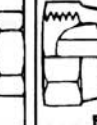



Dash Size	Inch Size	SAE100R2 Maximum Operating Pressure						For non ORS Adapters		
			SAE 37° Flare Male (JIC)	SAE 37° Flare Swivel (JIC)	Male Pipe NPTF	Female Pipe NPTF	Female Pipe Swivel NPSM	Male O-Ring Boss	Straight Thread O-Ring Adjustable	Female O-Ring Boss
-2	1/8	-	-	-	10000	5000	6000	-	-	-
-4	1/4	5000	8500	5500	9500	4500	5000	7500	4500	4500
-5	5/16	4250	8500	5000				7500	3500	3500
-6	3/8	4000	7000	4000	8000	3500	4000	7500	4000	3500
-8	1/2	3500	6000	4000	6000	3500	3500	7500	4000	3000
-10	5/8	2750	5500	3000				7500	4000	2500
-12	3/4	2250	4000	3000	5000	3000	3500	5000	3500	1800
-14	7/8	2000	4000	3000				5000	3000	1700
-16	1	2000	3500	2500	4000	2500	3000	4500	2500	1600
-20	1 1/4	1625	3500	2000	3000	2000	2000	4500	2000	1500
-24	1 1/2	1250	2000	1500	2000	1500	1500	3500	2000	1500
-32	2	1125	1250	1250	2000	1400	1500	2000		
Dash Size	Inch Size	SAE100R2 Maximum Operating Pressure						Flange		
			ORS Male	ORS Female Swivel	ORB/STR	ORB/ADJ	Male SAE Flareless	Code 61	Code 62	
-2	1/8	-	-	-	-	-	-	-	-	
-4	1/4	5000	9000	9000	9000	6000	6000	-	-	
-5	5/16	4250						-	-	
-6	3/8	4000	9000	9000	9000	6000	6000	-	-	
-8	1/2	3500	9000	8000	9000	6000	6000	5000	6000	
-10	5/8	2750	9000	8000	9000	6000	5000			
-12	3/4	2250	6000	6000	6000	6000	4500	5000	6000	
-14	7/8	2000								
-16	1	2000	6000	6000	6000	5000	4000	5000	6000	
-20	1 1/4	1625	4500	4500	4500	4500		4000	6000	
-24	1 1/2	1250	4000	4000	4000	3000		3000	6000	
-32	2	1125						3000	6000	



General Information

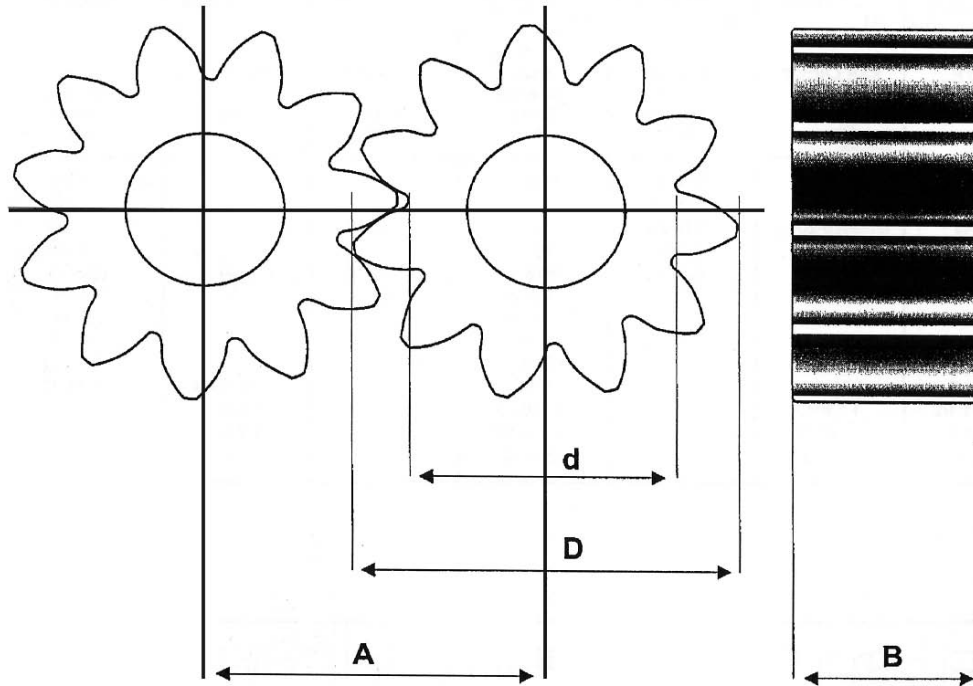
Hose Fitting Thread Guide

PARFLEX STYLE NO.								
Dash Size	NPTF Pipe Thread Size	SAE (JIC)37° Flare Thread Size	SAE 45° Flare Thread Size	"O" Ring Style Straight Thread Size	SAE Inverted Flare Thread Size	PTT30° Flare Thread Size	SAE Flareless Thread Size	Seal Lock Thread
2	1/8-27	5/16-24	5/16-24	5/16-24	-	-	5/16-24	-
3	-	3/8-24	3/8-24	3/8-24	-	-	3/8-24	-
4	1/4-18	7/16-20	7/16-20	7/16-20	1/4-18	-	7/16-20	1/16-18
5	-	1/2-20	1/2-20	1/2-20	-	-	1/2-20	-
6	3/8-18	9/16-18	5/8-18	9/16-18	3/8-18	-	9/16-18	11/16-16
8	1/2-14	3/4-16	2 3/4-16	3/4-16	1/2-14	-	3/4-16	13/16-16
10	-	7/8-14	7/8-14	7/8-14	-	-	7/8-14	1-14
12	3/4-14	1 1/16-12	1 1/16-12	1 1/16-12	-	-	1 1/16-12	1 3/6-12
14	-	1 3/16-12	-	1 3/16-12	-	-	1 3/16-12	-
16	1-11 1/2	1 5/16-12	-	1 5/16-12	-	1 5/16-14	1 5/16-12	1 7/16-12
20	1 1/4-11 1/2	1 5/8-12	-	1 5/8-12	-	1 5/8-14	1 5/8-12	-
24	1 1/2-11/12	1 7/8-12	-	1 7/8-12	-	1 7/8-14	1 7/8-12	-
32	2-11 1/2	2 1/2-12	-	2 1/2-12	-	2 1/2-12	2 1/2-12	-

PARFLEX STYLE NO.										
Fitting Size	Metric Swivel Female Thread Size	Metric Swivel Female Thread Size	Male Stud Thread Size	Male Stud Thread Size	Male BSPP Thread Size	BSP: Swivel Female Thread Size	French Swivel Female Gas Series	French Swivel Female Metric Series	French Swivel Male Metric Series	French Male Stud Gas Series
4	-	-	-	-	1/4"	1/4"	-	-	-	-
6	1M12x1,5	-	M12x1,5	-	3/8"	3/8"	-	M12x1	M12x1	-
8	M14x1,5	M16x1,5	M14x1,5	M16x1,5	1/2"	1/2"	-	M14x1,5	M14x1,5	-
10	M16x1,5	M18x1,5	M16x1,5	M18x1,5	-	-	-	M16x1,5	M16x1,5	-
12	M18x1,5	M20x1,5	M18x1,5	M20x1,5	3/4"	3/4"	-	M18x1,5	M18x1,5	-
-	-	-	-	-	-	-	M20x1,5	-	-	M20x1,5
14	-	M22x1,5	-	M22x1,5	-	-	-	M20x1,5	M20x1,5	-
15	M22x1,5	-	M22x1,5	-	-	-	-	M22x1,5	-	-
16	-	M24x1,5	-	M24x1,5	1"	1"	-	M24x1,5	M24x1,5	-
-	-	-	-	-	-	-	M24x1,5	-	-	M24x1,5
18	M26x1,5	-	M26x1,5	-	-	-	-	M27x1,5	M27x1,5	-
20	-	M30x2	-	M30x2	-	-	-	M27x1,5	-	-
-	-	-	-	-	-	-	M30x1,5	-	-	M30x1,5
22	M30x2	-	M30x2	-	-	-	-	M30x1,5	M30x1,5	-
25	-	M36x2	-	M36x2	-	-	-	M33x1,5	-	-
-	-	-	-	-	-	-	M36x1,5	-	-	M36x1,5
28	M36x2	-	M36x2	-	-	-	-	-	-	-
30	-	M42x2	-	M42x2	-	-	-	M39x1,5	M39x1,5	-
33	-	-	-	-	-	-	M45x1,5	-	-	M45x1,5

General Information

How to work out approximate flow capacity of a gear pump in litres per minute at 1450 RPM. (or in CM^3 per revolution)



FORMULA: USING TWO GEARS

NOTE: All dimensions in MM \div by 1000 to get CC/REV.

A = Centre to centre of shafts

B = Gear width

D = Gear OD

d = Gear ID

$$1.3682 \times A \times B \times (D-d)$$

EXAMPLE $1.3682 \times 44.3 \times 32 \times (53.3-33.5)$

$= 38403.2 \div$ by 1000 to get CC/REV..

38.4 CC/REV.

FORMULA: USING ONE GEAR (NOT AS ACCURATE)

Formula; $(D^2 - d^2) \times B \times \frac{\pi}{4}$

METHOD OF DETERMINING THE INSIDE DIAMETER OF HYDRAULIC TUBING

When determining tubing sizes one must always use the flow rate that is going to be transmitted in the tubing for calculating diameters. Do not use the pump inlet and outlet ports as a guide to determine the tube size. One can safely say then, that any component used in a hydraulic system must be chosen according to the flow it can handle and not according to port sizes. There are recommended flow velocities for the various lines in a hydraulic system. These fluid velocities are recommended for oil up to a viscosity of 68 centistoke at 40° C. The maximum fluid velocity for pump intake is 0.7 metres/second (suction line). Fluid velocity for pressure lines is 3m/sec. Fluid velocity for return lines is 3m/sec. The flow rate of oil leaving the cap end of a cylinder, when it is retracting, is more than the oil that is being delivered by the pump. The reason for this statement is that oil is being forced into the rod end of the cylinder, against the annulus area which is smaller than the full piston area. This means that the cylinder retracts at a faster rate than it extends, sending a higher flow rate out of the cap end of the cylinder, which must be taken into consideration when determining the size of the return line.

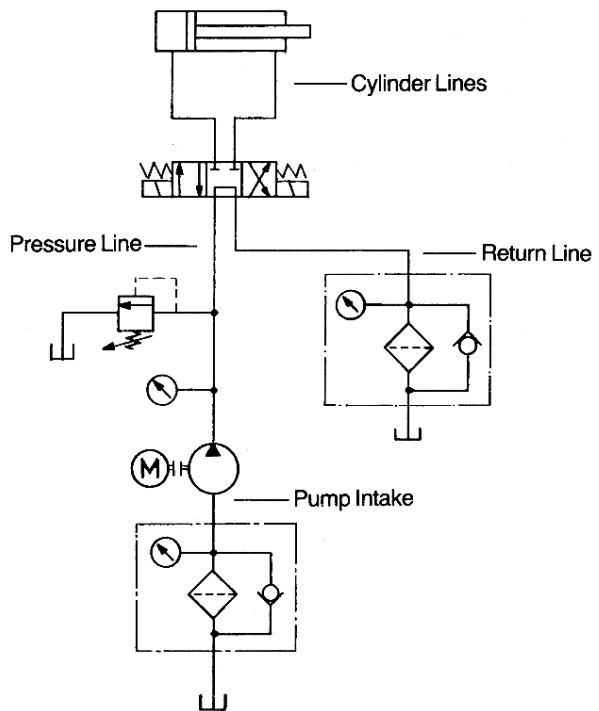
Formula to determine the inside diameter of hydraulic tubing.

$$D = \sqrt{\frac{Q \times 21,22}{V}}$$

D = Inside Diameter of tubing in millimetres.

Q = Oil flow rate in litres per minute.

V = Recommended fluid velocity in metres per second.



USEFUL HYDRAULIC FORMULAE

PUMPS AND MOTORS:

Power to Drive Hydraulic Pump (kW) = Pressure (MPa) x Flow (L/sec) x 1,2. (Extra Power to overcome frictional losses.)

Geometric Flow Rate of Pump/Motor (l.p.m.) = $\frac{\text{Swept Volume (cm}^3\text{/rev)} \times \text{Shaft Speed (r.p.m)}}{1000}$

Theoretical Torque of Hydraulic Motor (Nm) = Pressure (N/m²) x Swept Volume (m³/rev)

Heat Equivalent (Joule/sec) = Pressure (N/m²) x Flow Rate (m³/sec)

CYLINDERS:

Flow Rate (m³/sec) = Effective Piston Area (m²) x Cylinder Speed (m/sec)

Theoretical Force (N) = Pressure (N/m²) x Effective Piston Area (m²)

Steel Tubing & Pipe Clamps

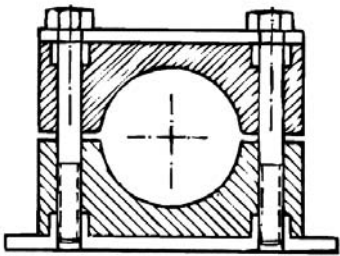
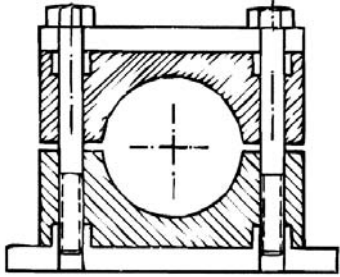


TRAMTRADE

Seamless Hydraulic Line Tube Din 2391/C

Size	Working Pressure	Price (ZAR)
6mm x 1	389	
6mm x 1.5	549	
6mm x 2	692	
8mm x 1	333	
8mm x 1.5	431	
10mm x 1	282	
10mm x 1.5	373	
10mm x 2	478	
12mm x 1	235	
12mm x 1.5	353	
12mm x 2	409	
12mm x 2.5	576	
14mm x 1.5	302	
14mm x 2	403	
15mm x 1.5	282	
15mm x 2	376	
16mm x 1.5	264	
16mm x 2	353	
16mm x 3	452	
18mm x 1.5	235	
18mm x 2	313	
20mm x 2	282	
20mm x 2.5	353	
20mm x 3	373	
22mm x 2	256	
25mm x 2	226	
25mm x 2.5	282	
25mm x 3	338	
25mm x 4	394	
28mm x 2	201	
28mm x 3	302	
30mm x 2.5	235	
30mm x 3	282	
30mm x 4	376	
35mm x 3	242	
38mm x 2.5	186	
38mm x 3	223	
38mm x 4	297	
38mm x 5	371	
42mm x 2.5	120	
42mm x 3	201	

Hydraulic Pipe Clamps

	Part No.	Description	Price (ZAR)
		LIGHT DUTY CLAMPS	
	CL-06		
	CL-08		
	CL-10		
	CL-12		
	CL-14		
	CL-15		
	CL-16		
	CL-18		
	CL-20		
	CL-22		
	CL-25		
	CL-28		
	CL-30		
	CL-32		
	CL-35		
CL-38			
		HEAVY DUTY PIPE CLAMPS	
	CL-08		
	CL-10		
	CL-12		
	CL-15		
	CL-16		
	CL-18		
	CL-20		
	CL-22		
	CL-25		
	CL-28		
	CL-30		
	CL-32		
	CL-35		
	CL-38		

Minimess Connectors & Hose



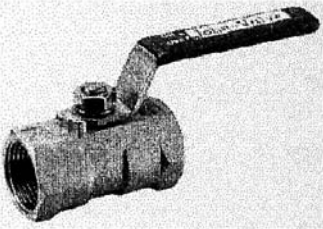
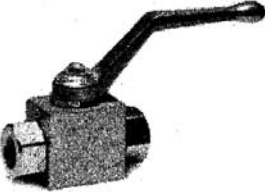
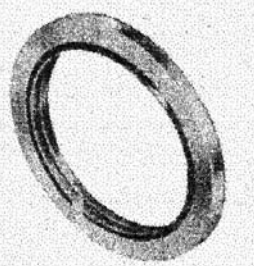
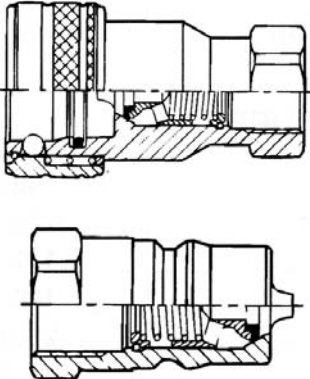
Test Connectors and Hoses

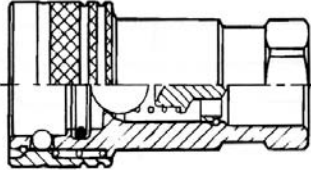
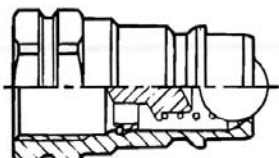
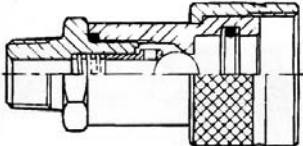
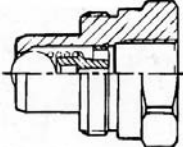
Part No.	Description	Price (ZAR)
30BT0000	Collar	
31TTN000	16 x 2.0	
32CP0000	Dust Cap	
34R00000	6mm Stand Pipe	
34R30000	8mm Stand Pipe	
36140000	1/4 Gauge Coupling	
36120000	1/2 Gauge Coupling	
38140000	1/4 BSP Female	
38380000	3/8 BSP Female	
39160000	7/16 JIC Female	
00RS0000	Mini Mess Hose	
0108 x 100	CSHM 10 x 1.0 O'Ring	
0110 x 100	CSHM 10 x 1.0 O'Ring	
0171 x 200	CSHU 7/16 UNF O'Ring	
0191 x 200	CSHU 9/16 UNF O'Ring	
0208 x 100	CSHM 8 x 1.0 captive seal	
0310 x 100	CSHM 10 x 1.0 no seal	
0312 x 150	CSHR 12 x 1.5 no seal	
0418G000	CSHM 1/8 no seal	
0414G00D	CSHR 1/4 no seal	
0438G00D	CSHR 3/8 no seal	
0612 x 150	CSHM 12 x 1.5 captive seal	
0718G000	CSHR 1/8 captive seal	
0714G000	CSHR 1/4 captive seal	
0738G000	CSHR 3/8 captive seal	
1014 x 150	CSHS 08 L	
1016 x 150	CSHS 10 L	
1018 x 150	CSHS 12 L	
1022 x 150	CSHS 15 L	
1026 x 150	CSHS 18 L	
1030 x 200	CSHS 22 L	
1035 x 200	CSHS 28 L	
1116 x 150	CSHS 08 S	
1118 x 150	CSHS 10 S	
1120 x 150	CSHS 12 S	
1124 x 150	CSHS 16 S	
1130 x 200	CSHS 20 S	
1136 x 200	CSHS 25 S	
1814000S	CSHO 1/4 BSP	
1812000S	CSHO 1/2 BSP	
20140000	CSSD 1/4 BSP	
21020000	CSSD 1/2 BSP	

Quick Release Couplings & Ball Valves

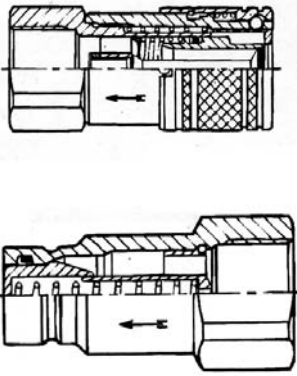


Ball Valves

	Part No.	Description	Price (ZAR)
		LOW PRESSURE	
		1/4 L/P Ball Valve	
		3/8 L/P Ball Valve	
		1/2 L/P Ball Valve	
		3/4 L/P Ball Valve	
		1" L/P Ball Valve	
		1 1/4 L/P Ball Valve	
		1 1/2 L/P Ball Valve	
		2" L/P Ball Valve	
		HIGH PRESSURE	
	BKHR 1/4	1/4 H/P Ball Valve	
	BKHR 3/8	3/8 H/P Ball Valve	
	BKHR 1/2	1/2 H/P Ball Valve	
	BKHR 3/4	3/4 Ball Valve	
	BKHR 1"	1" H/P Ball Valve	
	BKHR 1 1/4	1 1/4 H/P Ball Valve	
	BKHR 1 1/2	1 1/2 H/P Ball Valve	
BKHR 2"	2" H/P Ball Valve		
		DOWTY WASHERS	
		BW 1/4	
		BW 3/8	
		BW 1/2	
		BW 3/4	
		BW 1"	
		BW 1 1/4	
		BW 1 1/2	
	BW 2"		
		PIN TYPE	
	PAVI 0606 002	1/4 Female BSP	
	PAVI 0606 003	1/4 Male BSP	
	PAVI 0606 012	1/4 Female NPT	
	PAVI 0606 013	1/4 Male NPT	
	PAVI 1010 002	3/8 Female BSP	
	PAVI 1010 003	3/8 Male BSP	
	PAVI 1010 012	3/8 Female NPT	
	PAVI 1010 013	3/8 Male NPT	
	PAVI 1313002	1/2 Female BSP	
	PAVI 1313003	1/2 Male BSP	
	PAVI 1313012	1/2 Female NPT	

	Part No.	Description	Price (ZAR)
	PAVI 1313013	1/2 Male NPT	
	PAVI 2019 002	3/4 Female BSP	
	PAVI 2019 003	3/4 Male BSP	
	PAVI 2525 002	1" Female BSP	
	PAVI 2525 003	1" Male BSP	
	PAVI 3031 002	1 1/4 Female BSP	
	PAVI 3031 003	1 1/4 Male BSP	
	PAVI 3939 002	1 1/2 Female BSP	
	PAVI 3939 003	1 1/2 Male BSP	
	PAVI 5051 002	2" Female BSP	
	PAVI 5051 003	2" Male BSP	
	BALL TYPE		
	PDSI 0606 002	1/4 Female BSP	
	PDSI 0606 003	1/4 Male BSP	
	PDSI 0606 012	1/4 Female NPT	
	PDSI 0606 013	1/4 Male NPT	
	PDSI 1010 002	3/8 Female BSP	
	PDSI 1010 003	3/8 Male SSP	
	PDSI 1010 012	3/8 Female NPT	
	PDSI 1010 013	3/8 Male NPT	
	PDSI 1313 002	1/2 Female BSP	
	PDSI 1313 003	1/2 Male BSP	
	PDSI 1313 012	1/2 Female NPT	
	PDSI 1313 013	1/2 Male NPT	
	PDSI 2019 002	3/4 Female BSP	
	PDSI 2019 003	3/4 Male BSP	
	PDSI 2525 002	1" Female BSP	
	PDSI 2525 003	1" Male BSP	
	HIGH PRESSURE		
	PVS3 1006022	1/4 Female NPT	
	PVSI 1006013	1/4 Male NPT	
	PVS3 1010022	3/8 Female NPT	
	PVS3 1010013	3/8 Male NPT	
			

Valves and Pipes

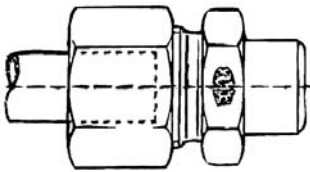
	Part No.	Description	Price (ZAR)
		FLAT FACE	
	PLTI 0606 002	1/4 Female BSP	
	PLTI 0606 003	1/4 Male BSP	
	PLTI 1010 002	3/8 Female BSP	
	PLTI 1010 003	3/8 Male BSP	
	PLTI 1313 002	1/2 Female BSP	
	PLTI 1313 003	1/2 Male BSP	
	PLTI 2019 002	3/4 Female BSP	
	PLTI 2019 003	3/4 Male BSP	
	PLTI 2525 002	1" Female BSP	
	PLTI 2525 003	1" Male BSP	

Steel Pipe Fittings



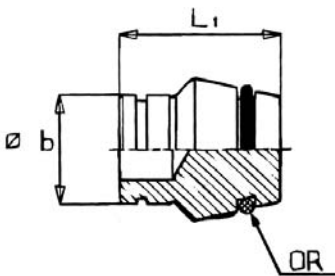
Steel Pipe Fittings DIN2353

Welding Straight Fittings

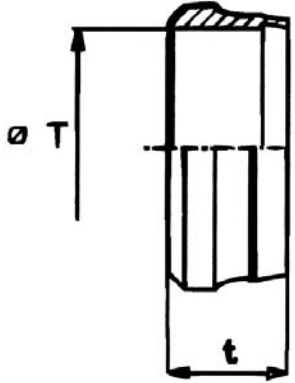
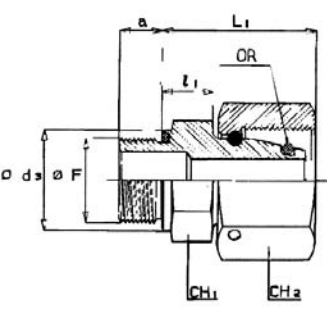


Part No.	Description	Price (ZAR)
311-06L	AS 06L	
311-08L	AS 08L	
311-10L	AS 10L	
311-12L	AS 12L	
311-15L	AS 15L	
311-18L	AS 18L	
131-22L	AS 22L	
131-28L	AS 28L	
311-35L	AS 35L	
311-42L	AS 42L	
311-06S	AS 06S	
311-08S	AS 08S	
311-10S	AS 10S	
311-12S	AS 12S	
311-14S	AS 14S	
311-16S	AS 16S	
311-20S	AS 20S	
311-25S	AS 25S	
311-30S	AS 30S	
311-38S	AS 38S	

Blanking Plug

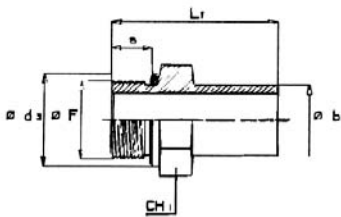


744-06L/S	BUZ 06L/S	
744-08L/S	BUZ 08L/S	
744-10L/S	BUZ 10L/S	
744-12L/S	BUZ 12L/S	
744-14S	BUZ 14S	
744-15L	BUZ 15L	
744-16S	BUZ 16S	
744-18L	BUZ 18L	
744-20S	BUZ 20S	
744-22L	BUZ 22L	
744-25S	BUZ 25S	
744-28L	BUZ 28L	
744-30S	BUZ 30S	
744-35L	BUZ 35L	
744-38S	BUZ 38S	
744-42L	BUZ 42L	

	Part No.	Description	Price (ZAR)
<p>Cutting Rings</p> 	342-04LL	D 04LL	
	342-06LL	D 06LL	
	342-08LL	D 08LL	
	342-06L/S	D 06L/S	
	342-08L/S	D 08L/S	
	342-10L/S	D 10L/S	
	324-12L/S	D 15L/S	
	342-15L	D 15L	
	342-18L	D 18L	
	322-22L	D 22L	
	342-28L	D 28L	
	342-35L	D 35L	
	342-42L	D 42L	
	342-14S	D 14S	
	342-16S	D 16S	
	342-20S	D 20S	
	342-25S	D 25S	
	342-30S	D 30S	
	342-38S	D 38S	
	<p>Preassembled Stud standpipe couplings with taper and OR, soft seal</p> 	717-106L	EGE 06 LRED
717-108L		EGE 08 LRED	
717-110L		EGE 10 LRED	
717-112L		EGE 12 LRED	
717-115L		EGE 15 LRED	
717-118L		EGE 18 LRED	
717-122L		EGE 22 LRED	
717-128L		EGE 28 LRED	
717-135L		EGE 35 LRED	
717-142L		EGE 42 LRED	
717-106S		EGE 06 SRED	
717-108S		EGE 08 SRED	
717-110S		EGE 10 SRED	
717-112S		EGE 12 SRED	
717-114S		EGE 14 SRED	
717-116S		EGE 16 SRED	
717-120S		EGE 20 SRED	
717-125S		EGE 25 SRED	
717-130S		EGE 30 SRED	
717-138S		EGE 38 SRED	

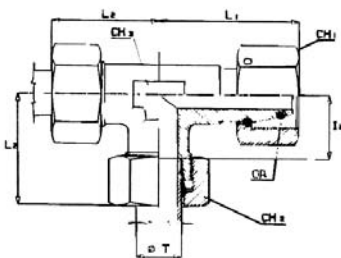
Steel Pipe Fittings DIN2353

Stud Standpipe couplings - soft seal

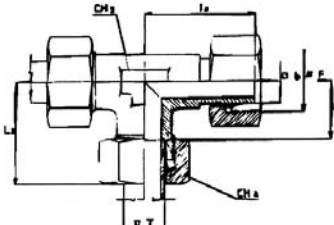
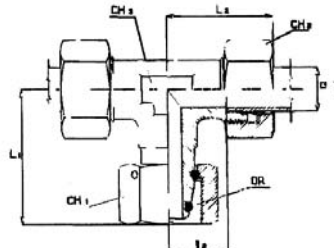


Part No.	Description	Price (ZAR)
412 - 106L	EVGE 06 LRED	
412 - 108L	EVGE 08 LRED	
412 - 110L	EVGE 10 LRED	
412 - 112L	EVGE 12 LRED	
412 - 115L	EVGE 15 LRED	
412 - 118L	EVGE 18 LRED	
412 - 122L	EVGE 22 LRED	
412 - 128L	EVGE 28 LRED	
412 - 135L	EVGE 35 LRED	
412 - 142L	EVGE 42 LRED	
412 - 106S	EVGE 06 SRED	
412 - 108S	EVGE 08 SRED	
412 - 110S	EVGE 10 SRED	
412 - 112S	EVGE 12 SRED	
412 - 114S	EVGE 14 SRED	
412 - 116S	EVGE 16 SRED	
412 - 120S	EVGE 20 SRED	
412 - 125S	EVGE 25 SRED	
412 - 130S	EVGE 30 SRED	
412 - 138S	EVGE 38 SRED	

Adjustable male stud T with taper and O-Ring

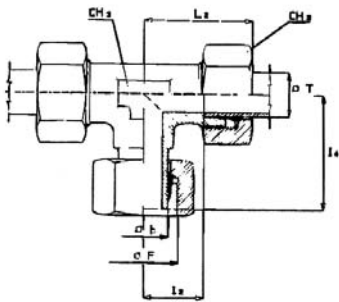


787 - 06L	EL 06L	
787 - 08L	EL 08L	
787 - 10L	EL 10L	
787 - 12L	EL 12L	
787 - 15L	EL 15L	
787 - 18L	EL 18L	
787 - 22L	EL 22L	
787 - 28L	EL 28L	
787 - 35L	EL 35L	
787 - 42L	EL 42L	
787 - 06S	EL 06S	
787 - 08S	EL 08S	
787 - 10S	EL 10S	
787 - 12S	EL 12S	
787 - 14S	EL 14S	
787 - 16S	EL 16S	
787 - 20S	EL 20S	
787 - 25S	EL 25S	
787 - 30S	EL 30S	
787 - 38S	EL 38S	

	Part No.	Description	Price (ZAR)	
<p>Swivel T male stud type preassembled</p> 	287 - 06L	EVL 06L		
	287 - 08L	EVL 08L		
	287 - 10L	EVL 10L		
	287 - 12L	EVL 12L		
	287 - 15L	EVL 15L		
	287 - 18L	EVL 18L		
	287 - 22L	EVL 22L		
	287 - 28L	EVL 28L		
	287 - 35L	EVL 35L		
	287 - 42L	EVL 42L		
	287 - 06S	EVL 06S		
	287 - 08S	EVL 08S		
	287 - 10S	EVL 10S		
	287 - 12S	EVL 12S		
	287 - 14S	EVL 14S		
	287 - 16S	EVL 16S		
	287 - 20S	EVL 20S		
	287 - 25S	EVL 25S		
	287 - 30S	EVL 30S		
	287 - 38S	EVL 38S		
	<p>Adjustable T with taper and O-Ring</p> 	757 - 06L	ET 06L	
		757 - 08L	ET 08L	
		757 - 10L	ET 10L	
		757 - 12L	ET 12L	
757 - 15L		ET 15L		
757 - 18L		ET 18L		
757 - 22L		ET 22L		
757 - 28L		ET 28L		
757 - 35L		ET 35L		
757 - 42L		ET 42L		
757 - 06S		ET 06S		
757 - 08S		ET 08S		
757 - 10S		ET 10S		
757 - 12S		ET 12S		
757 - 14S		ET 14S		
757 - 16S		ET 16S		
757 - 20S		ET 20S		
757 - 25S		ET 25S		
757 - 30S		ET 30S		
757 - 38S		ET 38S		

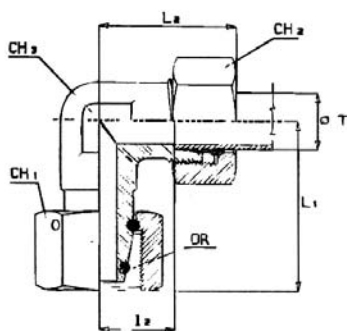
Steel Pipe Fittings DIN2353

Swivel T male stud type preassembled

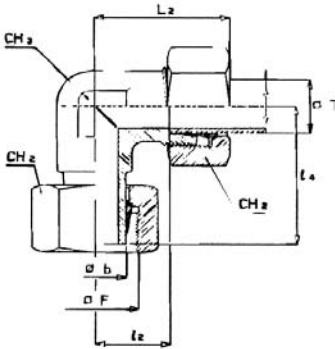
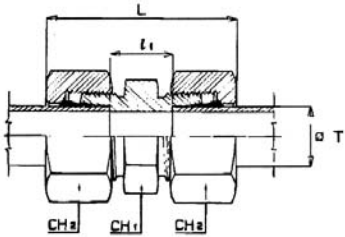


Part No.	Description	Price (ZAR)
257 - 06L	EVT 06L	
257 - 08L	EVT 08L	
257 - 10L	EVT 10L	
257 - 12L	EVT 12L	
257 - 15L	EVT 15L	
257 - 18L	EVT 18L	
257 - 22L	EVT 22L	
257 - 23L	EVT 23L	
257 - 35L	EVT 35L	
257 - 42L	EVT 42L	
257 - 06S	EVT 06S	
257 - 08S	EVT 08S	
257 - 10S	EVT 10S	
257 - 12S	EVT 12S	
257 - 14S	EVT 14S	
257 - 16S	EVT 16S	
257 - 20S	EVT 20S	
257 - 25S	EVT 25S	
257 - 30S	EVT 30S	
257 - 38S	EVT 38S	

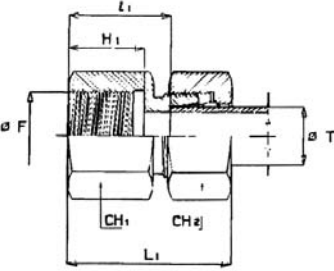
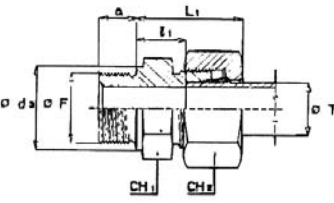
Adjustable male stud elbow with taper O-ring



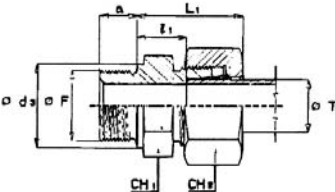
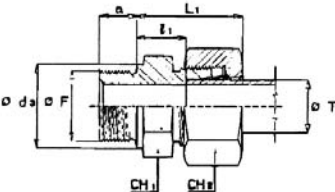
737 - 06L	EW 06L	
737 - 08L	EW 08L	
737 - 10L	EW 10L	
737 - 12L	EW 12L	
737 - 15L	EW 15L	
737 - 18L	EW 18L	
737 - 22L	EW 22L	
737 - 28L	EW 28L	
737 - 35L	EW 35L	
737 - 42L	EW 42L	
737 - 06S	EW 06S	
737 - 08S	EW 08S	
737 - 10S	EW 10S	
737 - 12S	EW 12S	
737 - 14S	EW 14S	
737 - 16S	EW 16S	
737 - 20S	EW 20S	
737 - 25S	EW 25S	
737 - 30S	EW 30S	
737 - 38S	EW 38S	

	Part No.	Description	Price (ZAR)
<p>Swivel elbow male stud type preassembled</p> 	237 - 06L	EVW 06L	
	237 - 08L	EVW 08L	
	237 - 10L	EVW 10L	
	237 - 12L	EVW 12L	
	237 - 15L	EVW 15L	
	237 - 18L	EVW 18L	
	237 - 22L	EVW 22L	
	237 - 28L	EVW 28L	
	237 - 35L	EVW 35L	
	237 - 42L	EVW 42L	
	237 - 06S	EVW 06S	
	237 - 08S	EVW 08S	
	237 - 10S	EVW 10S	
	237 - 12S	EVW 12S	
	237 - 14S	EVW 14S	
	237 - 16S	EVW 16S	
	237 - 20S	EVW 20S	
	237 - 25S	EVW 25S	
	237 - 30S	EVW 30S	
	237 - 38S	EVW 38S	
<p>Straight union fittings</p> 	221 - 04LL	G 04LL	
	221 - 06LL	G 06LL	
	221 - 08LL	G 08LL	
	221 - 06L	G 06L	
	221 - 08L	G 08L	
	221 - 10L	G 10L	
	221 - 12L	G 12L	
	221 - 15L	G 15L	
	221 - 18L	G 18L	
	221 - 22L	G 22L	
	221 - 28L	G 28L	
	221 - 35L	G 35L	
	221 - 42L	G 42L	
	221 - 06S	G 06S	
	221 - 08S	G 08S	
	221 - 10S	G 10S	
	221 - 12S	G 12S	
	221 - 14S	G 14S	
	221 - 16S	G 16S	
	221 - 20S	G 20S	
221 - 25S	G 25S		
221 - 30S	G 30S		
221 - 38S	G 38S		

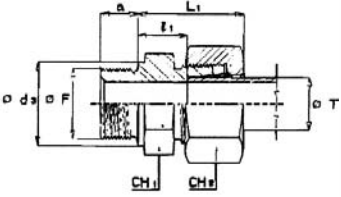
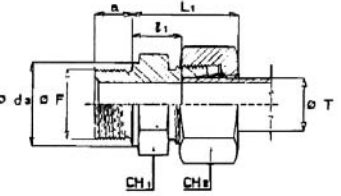
Steel Pipe Fittings DIN2353

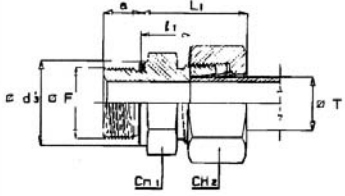
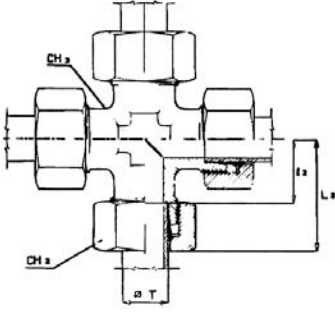
	Part No.	Description	Price (ZAR)	
<p>Female stud couplings</p> 	431 - 106L	GAI 06LR		
	431 - 108L	GAI 08LR		
	431 - 110L	GAI 10LR		
	431 - 112L	GAI 12LR		
	431 - 115L	GAI 15LR		
	431 - 118L	GAI 18LR		
	431 - 122L	GAI 22LR		
	431 - 128L	GAI 28LR		
	431 - 135L	GAI 35LR		
	431 - 142L	GAI 42LR		
	431 - 106S	GAI 06SR		
	431 - 108S	GAI 08SR		
	431 - 110S	GAI 10SR		
	431 - 112S	GAI 12SR		
	431 - 114S	GAI 14SR		
	431 - 116S	GAI 16SR		
	431 - 120S	GAI 20SR		
	431 - 125S	GAI 25SR		
	431 - 130S	GAI 30SR		
	431 - 138S	GAI 38SR		
	<p>Straight end fittings</p> 	211 - 04LL	GE 04LLR	
		211 - 06LL	GE 06LLR	
		211 - 08LL	GE 08LLR	
		211 - 106L	GE 06LR	
		211 - 106L	GE 06LR 1/4"	
211 - 108L		GE 08LR		
211 - 108L		GE 08LR 3/8"		
211 - 110L		GE 10LR		
211 - 110L		GE 10LR 3/8"		
211 - 110L		GE 10LR 1/2"		
211 - 112L		GE 12LR		
211 - 112L		GE 12LR 1/4"		
211 - 112L		GE 12LR 1/2"		
211 - 115L		GE 15LR		
211 - 115L		GE 15LR 3/8"		
211 - 118L		GE 18LR		
211 - 122L		GE 22LR		
211 - 122L		GE 22LR 1/2"		
211 - 128L		GE 28LR		
211 - 135L		GE 35LR		
211 - 142L	GE 42LR			

Steel Pipe Fittings DIN2353

	Part No.	Description	Price (ZAR)	
<p>Straight end fittings</p> 	211 - 106S	GE 06SR		
	211 - 106S	GE 06SR 3/8"		
	211 - 108S	GE 08SR		
	211 - 108S	GE 08SR 3/8"		
	211 - 110S	GE 10SR		
	211 - 110S	GE 10SR 1/4"		
	211 - 110S	GE 10SR 1/2"		
	211 - 112S	GE 12SR		
	211 - 112S	GE 12SR 1/4"		
	211 - 112S	GE 12SR 1/2"		
	211 - 114S	GE 14SR		
	211 - 114S	GE 14SR 3/8"		
	211 - 116S	GE 16SR		
	211 - 116S	GE 16SR 3/8"		
	211 - 116S	GE 16SR 3/4"		
	211 - 120S	GE 20SR		
	211 - 120S	GE 20SR 1/2"		
	211 - 120S	GE 20SR 1"		
	211 - 125S	GE 25SR		
	211 - 125S	GE 25SR 3/4"		
	211 - 130S	GE 30SR		
	211 - 130S	GE 30SR 1"		
	211 - 138S	GE 38SR		
	211 - 138S	GE 38SR 1 1/4"		
	211 - 138S	GE 38SR 1"		
	<p>Straight end fittings</p> 	211 - 306L	GE 06LM	
		211 - 308L	GE 08LM	
211 - 310L		GE 10LM		
211 - 312L		GE 12LM		
211 - 315L		GE 15LM		
211 - 318L		GE 18LM		
211 - 322L		GE 22LM		
211 - 328L		GE 28LM		
211 - 335L		GE 35LM		
211 - 342L		GE 42LM		
211 - 306S		GE 06SM		
211 - 308S		GE 08SM		
211 - 310S		GE 10SM		
211 - 312S		GE 12SM		
211 - 314S		GE 14SM		
211 - 316S		GE 16SM		
211 - 320S		GE 20SM		
211 - 325S		GE 25SM		
211 - 330S		GE 30SM		
211 - 380S		GE 38SM		

Steel Pipe Fittings DIN2353

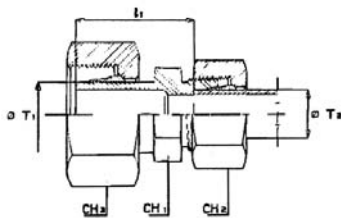
	Part No.	Description	Price (ZAR)
<p>Straight end fittings</p> 	211 - 506L	GE 06L/NPT	
	211 - 506L	GE 06L/NPT 1/4" NPT	
	211 - 508L	GE 08L/NPT	
	211 - 510L	GE 10L/NPT	
	211 - 510L	GE 10L/ 3/8" NPT	
	211 - 512L	GE 12L/NPT	
	211 - 512L	GE 12L/ 1 1/4" NPT	
	211 - 512L	GE 12L/ 1/2"NPT	
	211 - 515L	GE 15L/NPT	
	211 - 515L	GE 15L/ 1 3/8" NPT	
	211 - 518L	GE 18L/NPT	
	211 - 522L	GE 22L/NPT	
	211 - 528L	GE 28L/NPT	
	211 - 535L	GE 35L/NPT	
	211 - 542L	GE 42L/NPT	
	211 - 506S	GE 06S/NPT	
	211 - 508S	GE 08S/NPT	
	211 - 510S	GE 10S/NPT	
	211 - 510S	GE 10S/ 1/4" NPT	
	211 - 512S	GE 12S/NPT	
	211 - 512S	GE 12S/ 1/2"NPT	
	211 - 514S	GE 14S/NPT	
	211 - 516S	GE 16S/NPT	
	211 - 520S	GE 20S/NPT	
	211 - 525S	GE 25S/NPT	
	211 - 530S	GE 30S/NPT	
	211 - 538S	GE 38S/NPT	
	<p>Straight end fittings</p> 	212 - 106L	GE 06 LRED
212 - 108L		GE 08 LRED	
212 - 110L		GE 10 LRED	
212 - 112L		GE 12 LRED	
212 - 115L		GE 15 LRED	
212 - 118L		GE 18 LRED	
212 - 122L		GE 22 LRED	
212 - 128L		GE 28 LRED	
212 - 135L		GE 35 LRED	
212 - 142L		GE 42 LRED	
212 - 106S		GE 06 SRED	
212 - 108S		GE 08 SRED	
212 - 110S		GE 10 SRED	
212 - 112S		GE 12 SRED	
212 - 114S		GE 14 SRED	
212 - 116S		GE 16 SRED	
212 - 120S		GE 20 SRED	

	Part No.	Description	Price (ZAR)	
<p>Straight end fittings with gasket metric</p> 	212 - 1255	GE 25 SRED		
	212 - 1308	GE 30 SRED		
	212 - 1388	GE 38 SRED		
	212 - 306L	GE 06 LMED		
	212 - 308L	GE 08 LMED		
	212 - 310L	GE 10 LMED		
	212 - 312L	GE 12 LMED		
	212 - 315L	GE 15 LMED		
	212 - 318L	GE 18 LMED		
	212 - 322L	GE 22 LMED		
	212 - 328L	GE 28 LMED		
	212 - 335L	GE 35 LMED		
	212 - 342L	GE 42 LMED		
	212 - 306S	GE 06 SMED		
	212 - 308S	GE 08 SMED		
	212 - 310S	GE 10 SMED		
	212 - 312S	GE 12 SMED		
	212 - 314S	GE 14 SMED		
	212 - 316S	GE 16 SMED		
	212 - 320S	GE 20 SMED		
	212 - 325S	GE 25 SMED		
	212 - 330S	GE 30 SMED		
	212 - 338S	GE 38 SMED		
	<p>Cross union fittings</p> 	301 - 06L	K 06L	
		301 - 08L	K 08L	
		301 - 10L	K 10L	
		301 - 12L	K 12L	
		301 - 15L	K 15L	
		301 - 18L	K 18L	
		301 - 22L	K 22L	
		301 - 28L	K 28L	
		301 - 35L	K 35L	
		301 - 42L	K 42L	
301 - 06S		K 06S		
301 - 08S		K 08S		
301 - 10S		K 10S		
301 - 12S		K 12S		
301 - 14S		K 14S		
301 - 16S		K 16S		
301 - 20S		K 20S		
301 - 25S		K 25S		
301 - 30S		K 30S		
301 - 38S		K 38S		

Steel Pipe Fittings DIN2353

	Part No.	Description	Price (ZAR)
	502 - 08/06L	KOR 08/06L	
	502 - 10/06L	KOR 10/06L	
	502 - 10/08L	KOR 10/08L	
	502 - 12/06L	KOR 12/06L	
	502 - 12/08L	KOR 12/08L	
	502 - 12/10L	KOR 12/10L	
	502 - 15/06L	KOR 15/06L	
	502 - 15/08L	KOR 15/08L	
	502 - 15/10L	KOR 15/10L	
	502 - 15/12L	KOR 15/12L	
	502 - 18/06L	KOR 18/06L	
	502 - 18/08L	KOR 18/08L	
	502 - 18/10L	KOR 18/10L	
	502 - 18/12L	KOR 18/12L	
	502 - 18/15L	KOR 18/15L	
	502 - 22/06L	KOR 22/06L	
	502 - 22/08L	KOR 22/08L	
	502 - 22/10L	KOR 22/10L	
	502 - 22/12L	KOR 22/12L	
	502 - 22/15L	KOR 22/15L	
	502 - 22/18L	KOR 22/18L	
	502 - 28/06L	KOR 28/06L	
	502 - 28/08L	KOR 28/08L	
	502 - 28/10L	KOR 28/10L	
	502 - 28/12L	KOR 28/12L	
	502 - 28/15L	KOR 28/15L	
	502 - 28/18L	KOR 28/18L	
	502 - 28/22L	KOR 28/22L	
	502 - 35/06L	KOR 35/06L	
	502 - 35/08L	KOR 35/08L	
	502 - 35/10L	KOR 35/10L	
	502 - 35/12L	KOR 35/12L	
	502 - 35/15L	KOR 35/15L	
	502 - 35/18L	KOR 35/18L	
	502 - 35/22L	KOR 35/22L	
	502 - 35/28L	KOR 35/28L	
	502 - 42/06L	KOR 42/06L	
	502 - 42/08L	KOR 42/08L	
	502 - 42/10L	KOR 42/10L	
	502 - 42/12L	KOR 42/12L	
	502 - 42/15L	KOR 42/15L	
	502 - 42/18L	KOR 42/18L	
	502 - 42/22L	KOR 42/22L	
	502 - 42/28L	KOR 42/28L	
	502 - 42/35L	KOR 42/35L	

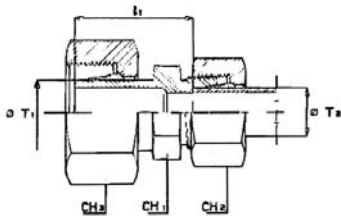
Standpipe reducing fittings, preassembled



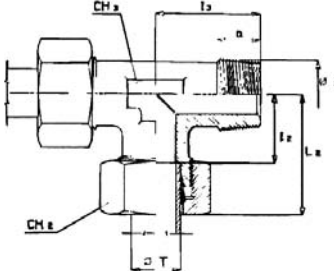
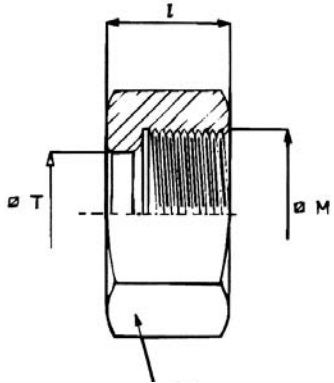
Steel Pipe Fittings DIN2353

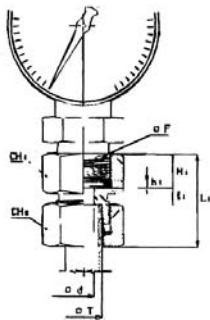
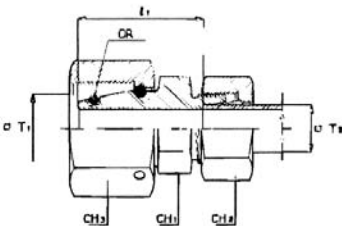
	Part No.	Description	Price (ZAR)
	502 - 08/06S	KOR 08/06S	
	502 - 10/06S	KOR 10/06S	
	502 - 10/08S	KOR 10/08S	
	502 - 12/06S	KOR 12/06S	
	502 - 12/08S	KOR 12/08S	
	502 - 12/10S	KOR 12/10S	
	502 - 14/06S	KOR 14/06S	
	502 - 14/08S	KOR 14/08S	
	502 - 14/10S	KOR 14/10S	
	502 - 14/12S	KOR 14/12S	
	502 - 16/06S	KOR 16/06S	
	502 - 16/08S	KOR 18/08S	
	502 - 16/10S	KOR 16/10S	
	502 - 16/12S	KOR 16/12S	
	502 - 16/14S	KOR 16/14S	
	502 - 20/06S	KOR 20/06S	
	502 - 20/08S	KOR 20/08S	
	502 - 20/10S	KOR 20/10S	
	502 - 20/12S	KOR 20/12S	
	502 - 20/14S	KOR 20/14S	
	502 - 20/16S	KOR 20/16S	
	502 - 25/06S	KOR 25/06S	
	502 - 25/08S	KOR 25/08S	
	502 - 25/10S	KOR 25/10S	
	502 - 25/12S	KOR 25/12S	
	502 - 25/14S	KOR 25/14S	
	502 - 25/16S	KOR 25/16S	
	502 - 25/20S	KOR 25/20S	
	502 - 30/06S	KOR 30/06S	
	502 - 30/08S	KOR 30/08S	
	502 - 30/10S	KOR 30/10S	
	502 - 30/12S	KOR 30/12S	
	502 - 30/14S	KOR 30/14S	
	502 - 30/16S	KOR 30/16S	
	502 - 30/20S	KOR 30/20S	
	502 - 30/25S	KOR 30/25S	
	502 - 38/06S	KOR 38/06S	
	502 - 38/08S	KOR 38/08S	
	502 - 38/10S	KOR 38/10S	
	502 - 38/12S	KOR 38/12S	
	502 - 38/14S	KOR 38/14S	
	502 - 38/16S	KOR 38/16S	
	502 - 38/20S	KOR 38/20S	
	502 - 38/25S	KOR 38/25S	
	502 - 38/30S	KOR 38/30S	

Standpipe reducing fittings, preassembled



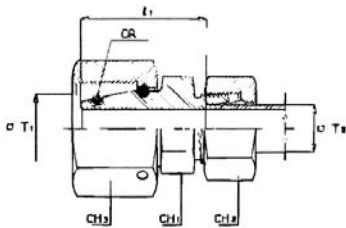
Steel Pipe Fittings DIN2353

	Part No.	Description	Price (ZAR)
<p>L end fittings</p> 	281 - 506L	LE 06L / NPT	
	281 - 508L	LE 08L / NPT	
	281 - 510L	LE 10L / NPT	
	281 - 512L	LE 12L / NPT	
	281 - 515L	LE 15L / NPT	
	281 - 518L	LE 18L / NPT	
	281 - 522L	LE 22L / NPT	
	281 - 528L	LE 28L / NPT	
	281 - 535L	LE 35L / NPT	
	281 - 542L	LE 42L / NPT	
	281 - 506S	LE 06S / NPT	
	281 - 508S	LE 08S / NPT	
	281 - 510S	LE 10S / NPT	
	281 - 512S	LE 12S / NPT	
	281 - 514S	LE 14S / NPT	
	281 - 516S	LE 16S / NPT	
	281 - 520S	LE 20S / NPT	
	281 - 525S	LE 25S / NPT	
	281 - 530S	LE 30S / NPT	
	281 - 538S	LE 38S / NPT	
<p>Straight end fittings with gasket</p> 	341 - 04LL	M 04LL	
	341 - 06LL	M 06LL	
	341 - 08LL	M 08LL	
	341 - 06L	M 06L	
	341 - 08L	M 08L	
	341 - 10L	M 10L	
	341 - 12L	M 12L	
	341 - 15L	M 15L	
	341 - 18L	M 18L	
	341 - 22L	M 22L	
	341 - 28L	M 28L	
	341 - 35L	M 35L	
	341 - 42L	M 42L	
	341 - 06S	M 06S	
	341 - 08S	M 08L	
	341 - 10S	M 10S	
	341 - 12S	M 12S	
	341 - 14S	M 14S	
	341 - 16S	M 16S	
	341 - 20S	M 20S	
341 - 25S	M 25S		
341 - 30S	M 30S		
341 - 38S	M 38S		

	Part No.	Description	Price (ZAR)	
<p>Guage fittings</p> 	401 - 106L	MAV 06LR		
	401 - 108L	MAV 08LR		
	401 - 110L	MAV 10LR		
	401 - 112L	MAV 12LR		
	401 - 106S	MAV 06SR		
	401 - 108S	MAV 08SR		
	401 - 110S	MAV 10SR		
	401 - 112S	MAV 12SR		
	402 - 106L	MAVEV 06LR		
	402 - 108L	MAVEV 08LR		
	402 - 110L	MAVEV 10LR		
	402 - 112L	MAVEV 12LR		
	402 - 106S	MAVEV 06SR		
	402 - 108S	MAVEV 08SR		
	402 - 110S	MAVEV 10SR		
	402 - 112S	MAVEV 12SR		
	<p>Reducing fittings with taper and O-Ring "S"</p> 	707 - 08/06L	RED 08/06L	
		707 - 10/06L	RED 10/06L	
707 - 10/08L		RED 10/08L		
707 - 12/06L		RED 12/06L		
707 - 12/08L		RED 12/08L		
707 - 12/10L		RED 12/10L		
707 - 15/06L		RED 15/06L		
707 - 15/08L		RED 15/08L		
707 - 15/10L		RED 15/10L		
707 - 15/12L		RED 15/12L		
707 - 18/06L		RED 18/06L		
707 - 18/08L		RED 18/08L		
707 - 18/10L		RED 18/10L		
707 - 18/12L		RED 18/12L		
707 - 18/15L		RED 18/15L		
707 - 22/06L		RED 22/06L		
707 - 22/08L		RED 22/08L		
707 - 22/10L		RED 22/10L		
707 - 22/12L		RED 22/12L		
707 - 22/15L		RED 22/15L		
707 - 22/18L		RED 22/18L		

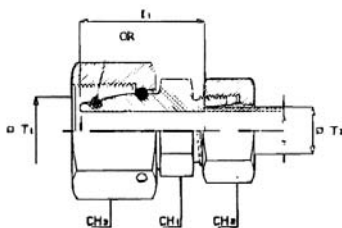
Steel Pipe Fittings DIN2353

Reducing fittings with taper and O-Ring "S"

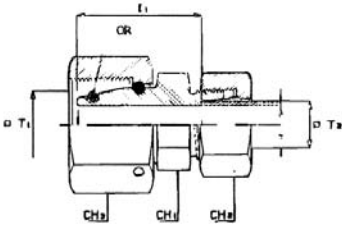
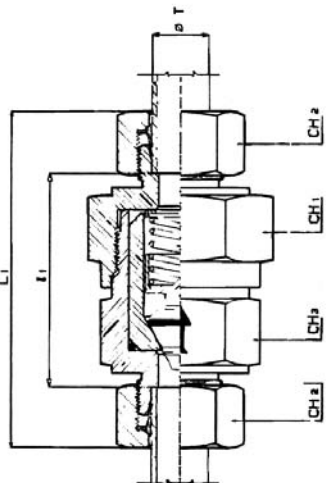


Part No.	Description	Price (ZAR)
707 - 28/06L	RED 22/06L	
707 - 28/08L	RED 22/08L	
707 - 28/10L	RED 22/10L	
707 - 28/12L	RED 22/12L	
707 - 28/15L	RED 22/15L	
707 - 28/18L	RED 22/18L	
707 - 28/22L	RED 22/22L	
707 - 35/15L	RED 35/15L	
707 - 35/18L	RED 35/18L	
707 - 35/22L	RED 35/22L	
707 - 35/28L	RED 35/28L	
707 - 42/18L	RED 42/18L	
707 - 42/22L	RED 42/22L	
707 - 42/28L	RED 42/28L	
707 - 42/35L	RED 42/35L	

Standpipe reducing fittings, preassembled



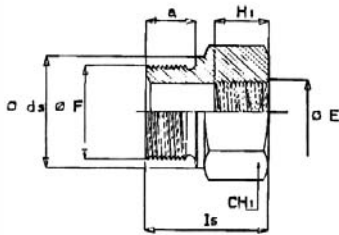
707 - 28/06S	RED 08/06S	
707 - 10/06S	RED 10/06S	
707 - 10/08S	RED 10/08S	
707 - 12/06S	RED 12/06S	
707 - 12/08S	RED 12/08S	
707 - 12/10S	RED 12/10S	
707 - 14/06S	RED 14/06S	
707 - 14/08S	RED 14/08S	
707 - 14/10S	RED 14/12S	
707 - 14/12S	RED 14/12S	
707 - 16/06S	RED 16/06S	
707 - 16/08S	RED 16/08S	
707 - 16/10S	RED 16/10S	
707 - 16/12S	RED 16/12S	
707 - 16/14S	RED 16/14S	
707 - 20/06S	RED 20/06S	
707 - 20/08S	RED 20/08S	
707 - 20/10S	RED 20/10S	
707 - 20/12S	RED 20/12S	
707 - 20/14S	RED 20/14S	
707 - 20/16S	RED 20/16S	

	Part No.	Description	Price (ZAR)	
<p>Standpipe reducing fittings, preassembled</p> 	707 - 25/06S	RED 25/06S		
	707 - 25/08S	RED 25/08S		
	707 - 25/10S	RED 25/10S		
	707 - 25/12S	RED 25/12S		
	707 - 25/14S	RED 25/14S		
	707 - 25/16S	RED 25/16S		
	707 - 25/20S	RED 25/20S		
	707 - 30/08S	RED 30/08S		
	707 - 30/10S	RED 30/10S		
	707 - 30/12S	RED 30/12S		
	707 - 30/14S	RED 30/14S		
	707 - 30/16S	RED 30/16S		
	707 - 30/20S	RED 30/20S		
	707 - 30/25S	RED 30/25S		
	707 - 38/12S	RED 38/12S		
	707 - 38/14S	RED 38/14S		
	707 - 38/16S	RED 38/16S		
	707 - 38/20S	RED 38/20S		
	707 - 38/25S	RED 38/25S		
	707 - 38/30S	RED 38/30S		
	<p>Non-return valves Tube/Tube</p> 	821 - 06L	RHD 06L	
		821 - 08L	RHD 08L	
		821 - 10L	RHD 10L	
		821 - 12L	RHD 12L	
		821 - 15L	RHD 15L	
821 - 18L		RHD 18L		
821 - 22L		RHD 22L		
821 - 28L		RHD 28L		
821 - 35L		RHD 35L		
821 - 42L		RHD 42L		
821 - 06S		RHD 06S		
821 - 08S		RHD 08S		
821 - 10S		RHD 10S		
821 - 12S		RHD 12S		
821 - 14S		RHD 14S		
821 - 16S		RHD 16S		
821 - 20S		RHD 20S		
821 - 25S		RHD 25S		
821 - 30S		RHD 30S		
821 - 38S		RHD 38S		

Steel Pipe Fittings DIN2353

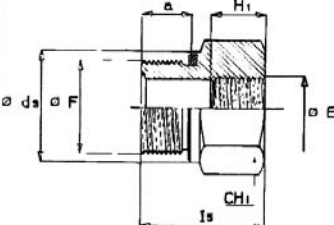
	Part No.	Description	Price (ZAR)
<p>Non-return valves Thread inlet</p>	813-06L	RHV 06L	
	813-08L	RHV 08L	
	813-10L	RHV 10L	
	813-12L	RHV 12L	
	813-15L	RHV 15L	
	813-18L	RHV 18L	
	813-22L	RHV 22L	
	813-28L	RHV 28L	
	813-35L	RHV 35L	
	813-42L	RHV 42L	
	813-06S	RHV 06S	
	813-08S	RHV 08S	
	813-10S	RHV 10S	
	813-12S	RHV 12S	
	813-14S	RHV 14S	
	813-16S	RHV 16S	
	813-20S	RHV 20S	
	813-25S	RHV 25S	
	813-30S	RHV 30S	
	813-38S	RHV 38S	
<p>Non-return valves Thread outlet</p>	812-06L	RHZ 06L	
	812-08L	RHZ 08L	
	812-10L	RHZ 10L	
	812-12L	RHZ 12L	
	812-15L	RHZ 15L	
	812-18L	RHZ 18L	
	812-22L	RHZ 22L	
	812-28L	RHZ 28L	
	812-35L	RHZ 35L	
	812-42L	RHZ 42L	
	812-06S	RHZ 06S	
	812-08S	RHZ 08S	
	812-10S	RHZ 10S	
	812-12S	RHZ 12S	
	812-14S	RHZ 14S	
	812-16S	RHZ 16S	
	812-20S	RHZ 20S	
	812-25S	RHZ 25S	
	812-30S	RHZ 30S	
	812-38S	RHZ 38S	

**Male - female
reducing fittings**

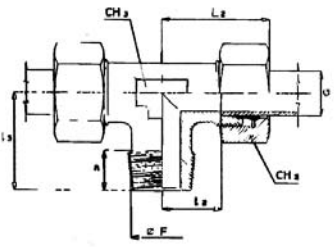
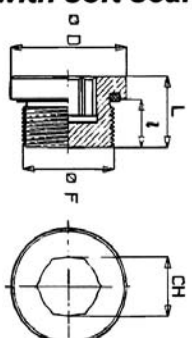


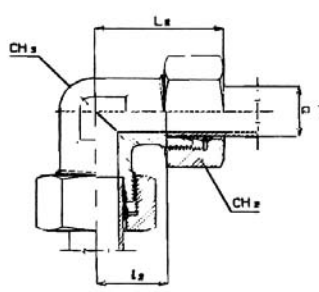
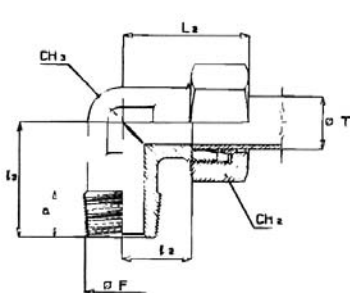
	Part No.	Description	Price (ZAR)
	421 - 1/8 x 1/4	RI 1/8 x 1/4	
	421 - 1/8 x 3/8	RI 1/8 x 3/8	
	421 - 1/4 x 1/8	RI 1/4 x 1/8	
	421 - 1/4 x 3/8	RI 1/4 x 3/8	
	421 - 1/4 x 1/2	RI 1/4 x 1/2	
	421 - 1/4 x 3/4	RI 1/4 x 3/4	
	421 - 3/8 x 1/8	RI 3/8 x 1/8	
	421 - 3/8 x 1/4	RI 3/8 x 1/4	
	421 - 3/8 x 1/2	RI 3/8 x 1/2	
	421 - 3/8 x 3/4	RI 3/8 x 3/4	
	421 - 1/2 x 1/8	RI 1/2 x 1/8	
	421 - 1/2 x 1/4	RI 1/2 x 1/4	
	421 - 1/2 x 3/8	RI 1/2 x 3/8	
	421 - 1/2 x 3/4	RI 1/2 x 3/4	
	421 - 1/2 x 1	RI 1/2 x 1	
	421 - 1/2 x 1 1/4	RI 1/2 x 1 1/4	
	421 - 3/4 x 1/4	RI 3/4 x 1/4	
	421 - 3/4 x 3/8	RI 3/4 x 3/8	
	421 - 3/4 x 1/2	RI 3/4 x 1/2	
	421 - 3/4 x 1	RI 3/4 x 1	
	421 - 3/4 x 1 1/4	RI 3/4 x 1 1/4	
	421 - 3/4 x 1 1/2	RI 3/4 x 1 1/2	
	421 - 1 x 1/4	RI 1 x 1/4	
	421 - 1 x 3/8	RI 1 x 3/8	
	421 - 1 x 1/2	RI 1 x 1/2	
	421 - 1 x 3/4	RI 1 x 3/4	
	421 - 1 x 1 1/4	RI 1 x 1 1/4	
	421 - 1 x 1 1/2	RI 1 x 1 1/2	
	421 - 1 1/4 x 1/2	RI 1 1/4 x 1/2	
	421 - 1 1/4 x 3/4	RI 1 1/4 x 3/4	
	421 - 1 1/4 x 1	RI 1 1/4 x 1	
	421 - 1 1/4 x 1 1/2	RI 1 1/4 x 1 1/2	
	421 - 1 1/2 x 1/2	RI 1 1/2 x 1/2	
	421 - 1 1/2 x 3/4	RI 1 1/2 x 3/4	
	421 - 1 1/2 x 1	RI 1 1/2 x 1	
	421 - 1 1/2 x 1 1/4	RI 1 1/2 x 1 1/4	

Steel Pipe Fittings DIN2353

	Part No.	Description	Price (ZAR)
<p>Male - female reducing fittings with gasket</p> 	721 - 1/8 x 1/4	RI 1/8 x 1/4 ED	
	721 - 1/8 x 3/8	RI 1/8 x 3/8 ED	
	721 - 1/4 x 1/8	RI 1/4 x 1/8 ED	
	721 - 1/4 x 3/8	RI 1/4 x 3/8 ED	
	721 - 1/4 x 1/2	RI 1/4 x 1/2 ED	
	721 - 1/4 x 3/4	RI 1/4 x 3/4 ED	
	721 - 3/8 x 1/8	RI 3/8 x 1/8 ED	
	721 - 3/8 x 1/4	RI 3/8 x 1/4 ED	
	721 - 3/8 x 1/2	RI 3/8 x 1/2 ED	
	721 - 3/8 x 3/4	RI 3/8 x 3/4 ED	
	721 - 1/2 x 1/8	RI 1/2 x 1/8 ED	
	721 - 1/2 x 1/4	RI 1/2 x 1/4 ED	
	721 - 1/2 x 3/8	RI 1/2 x 3/8 ED	
	721 - 1/2 x 3/4	RI 1/2 x 3/4 ED	
	721 - 1/2 x 1	RI 1/2 x 1 ED	
	721 - 1/2 x 1 1/4	RI 1/2 x 1 1/4 ED	
	721 - 3/4 x 1/4	RI 3/4 x 1/4 ED	
	721 - 3/4 x 3/8	RI 3/4 x 3/8 ED	
	721 - 3/4 x 1/2	RI 3/4 x 1/2 ED	
	721 - 3/4 x 1	RI 3/4 x 1 ED	
	721 - 3/4 x 1 1/4	RI 3/4 x 1 1/4 ED	
	721 - 3/4 x 1 1/2	RI 3/4 x 1 1/2 ED	
	721 - 1 x 1/4	RI 1 x 1/4 ED	
	721 - 1 x 3/8	RI 1 x 3/8 ED	
	721 - 1 x 1/2	RI 1 x 1/2 ED	
	721 - 1 x 3/4	RI 1 x 3/4 ED	
	721 - 1 x 1 1/4	RI 1 x 1 1/4 ED	
	721 - 1 x 1 1/2	RI 1 x 1 1/2 ED	
	721 - 1 1/4 x 1/2	RI 1 1/4 x 1/2 ED	
	721 - 1 1/4 x 3/4	RI 1 1/4 x 3/4 ED	
	721 - 1 1/4 x 1	RI 1 1/4 x 1 ED	
	721 - 1 1/4 x 1 1/2	RI 1 1/4 x 1 1/2 ED	
	721 - 1 1/2 x 1/2	RI 1 1/2 x 1/2 ED	
	721 - 1 1/2 x 3/4	RI 1 1/2 x 3/4 ED	
	721 - 1 1/2 x 1	RI 1 1/2 x 1 ED	
	721 - 1 1/2 x 1 1/4	RI 1 1/2 x 1 1/4 ED	

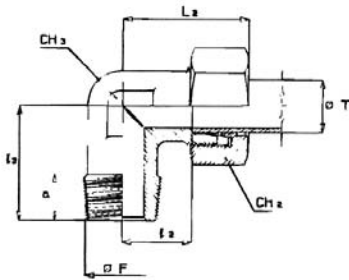
Steel Pipe Fittings DIN2353

	Part No.	Description	Price (ZAR)
	261 - 06S	T 06S	
	261 - 08S	T 08S	
	261 - 10S	T 10S	
	261 - 12S	T 12S	
	261 - 14S	T 14S	
	261 - 16S	T 16S	
	261 - 20S	T 20S	
	261 - 25S	T 25S	
	261 - 30S	T 30S	
	261 - 38S	T 38S	
<p>T end fittings</p> 	251 - 06L	TE 06L / NPT	
	251 - 08L	TE 08L / NPT	
	251 - 10L	TE 10L / NPT	
	251 - 12L	TE 12L / NPT	
	251 - 15L	TE 15L / NPT	
	251 - 18L	TE 18L / NPT	
	251 - 22L	TE 22L / NPT	
	251 - 28L	TE 28L / NPT	
	251 - 35L	TE 35L / NPT	
	251 - 42L	TE 42L / NPT	
	251 - 06S	TE 06S / NPT	
	251 - 08S	TE 08S / NPT	
	251 - 10S	TE 10S / NPT	
	251 - 12S	TE 12S / NPT	
	251 - 14S	TE 14S / NPT	
	251 - 16S	TE 16S / NPT	
	251 - 20S	TE 20S / NPT	
	251 - 25S	TE 25S / NPT	
	251 - 30S	TE 30S / NPT	
	251 - 38S	TE 38S / NPT	
<p>Blanking plugs with soft seal</p> 	336 - 10 x 1	VISTI 10 x 1 ED	
	336 - 12 x 1.5	VISTI 12 x 1.5 ED	
	336 - 14 x 1.5	VISTI 14 x 1.5 ED	
	336 - 16 x 1.5	VISTI 16 x 1.5 ED	
	336 - 18 x 1.5	VISTI 18 x 1.5 ED	
	336 - 22 x 1.5	VISTI 22 x 1.5 ED	
	336 - 26 x 1.5	VISTI 26 x 1.5 ED	
	336 - 27 x 2	VISTI 27 x 2 ED	
	336 - 33 x 2	VISTI 33 x 2 ED	
	336 - 42 x 2	VISTI 42 x 2 ED	
	336 - 48 x 2	VISTI 48 x 2 ED	

	Part No.	Description	Price (ZAR)
	336 - 1/8	VSTI 1/8" ED	
	336 - 1/4	VSTI 1/4" ED	
	336 - 3/8	VSTI 3/8" ED	
	336 - 1/2	VSTI 1/2" ED	
	336 - 3/4	VSTI 3/4" ED	
	336 - 1	VSTI 1" ED	
	336 - 1 1/4	VSTI 1 1/4" ED	
	336 - 1 1/2	VSTI 1 1/2" ED	
<p>Elbow union fittings</p> 	222 - 04LL	W 04LL	
	222 - 06LL	W 06LL	
	222 - 08LL	W 08LL	
	222 - 06L	W 06L	
	222 - 08L	W 08L	
	222 - 10L	W 10L	
	222 - 12L	W 12L	
	222 - 15L	W 15L	
	222 - 18L	W 18L	
	222 - 22L	W 22L	
	222 - 28L	W 28L	
	222 - 35L	W 35L	
	222 - 42L	W 42L	
	222 - 06S	W 06S	
	222 - 08S	W 08S	
	222 - 10S	W 10S	
	222 - 12S	W 12S	
	222 - 14S	W 14S	
	222 - 16S	W 16S	
	222 - 20S	W 20S	
222 - 25S	W 25S		
222 - 30S	W 30S		
222 - 38S	W 38S		
<p>Elbow union fittings</p> 	231 - 504LL	WE 04LL / NPT	
	231 - 506LL	WE 06LL / NPT	
	231 - 508LL	WE 08LL / NPT	
	231 - 506L	WE 06L / NPT	
	231 - 506L	WE 06L / 1/4 NPT	
	231 - 508L	WE 08L / NPT	
	231 - 510L	WE 10L / NPT	
	231 - 512L	WE 12L / NPT	
	231 - 512L	WE 12L / 1/4 NPT	
	231 - 512L	WE 12L / 1/2 NPT	
	231 - 515L	WE 15L / NPT	
	231 - 518L	WE 18L / NPT	

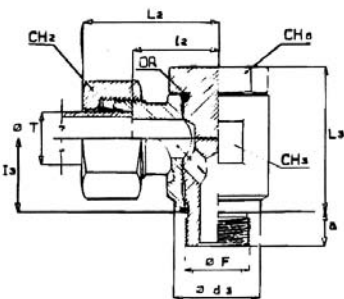
Steel Pipe Fittings DIN2353

Elbow union fittings



Part No.	Description	Price (ZAR)
231 - 522L	WE 22L / NPT	
231 - 528L	WE 28L / NPT	
231 - 535L	WE 35L / NPT	
231 - 542L	WE 42L / NPT	
231 - 506S	WE 06S / NPT	
231 - 508S	WE 08S / NPT	
231 - 510S	WE 10S / NPT	
231 - 510S	WE 10S / 1/4 NPT	
231 - 512S	WE 12S / NPT	
231 - 514S	WE 14S / NPT	
231 - 516S	WE 16S / NPT	
231 - 520S	WE 20S / NPT	
231 - 525S	WE 25S / NPT	
231 - 530S	WE 30S / NPT	
231 - 538S	WE 38S / NPT	

Swivel fittings with O-Ring



731 - 106L	WHO 06LR	
731 - 108L	WHO 08LR	
731 - 110L	WHO 10LR	
731 - 112L	WHO 12LR	
731 - 115L	WHO 15LR	
731 - 118L	WHO 18LR	
731 - 122L	WHO 22LR	
731 - 128L	WHO 28LR	
731 - 135L	WHO 35LR	
731 - 142L	WHO 42LR	
731 - 106S	WHO 06SR	
731 - 108S	WHO 08SR	
731 - 110S	WHO 10SR	
731 - 112S	WHO 12SR	
731 - 114S	WHO 14SR	
731 - 116S	WHO 16SR	
731 - 120S	WHO 20SR	
731 - 125S	WHO 25SR	
731 - 130S	WHO 30SR	
731 - 138S	WHO 38SR	

Steel Pipe Fittings DIN2353

	Part No.	Description	Price (ZAR)
<p>Elbow union fittings</p>	302 - 06L	WSV 06L	
	302 - 08L	WSV 08L	
	302 - 10L	WSV 10L	
	302 - 12L	WSV 12L	
	302 - 15L	WSV 15L	
	302 - 18L	WSV 18L	
	302 - 22L	WSV 22L	
	302 - 28L	WSV 28L	
	302 - 35L	WSV 35L	
	302 - 42L	WSV 42L	
	302 - 06S	WSV 06S	
	302 - 08L	WSV 08L	
	302 - 10S	WSV 10S	
	302 - 12S	WSV 12S	
	302 - 14S	WSV 14S	
	302 - 16S	WSV 16S	
	302 - 20S	WSV 20S	
	302 - 25S	WSV 25S	
	302 - 30S	WSV 30S	
	302 - 38S	WSV 38S	

Adaptors

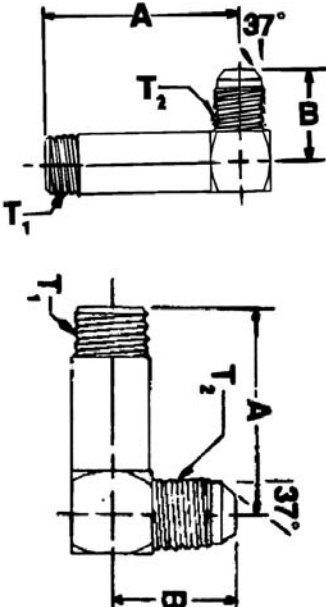
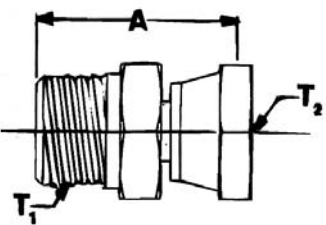


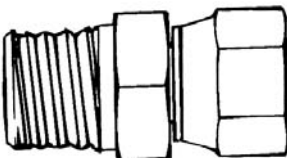
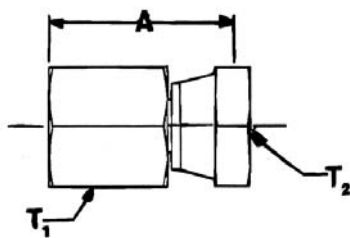
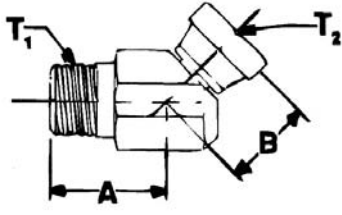
Adaptors

	Part No.	Description	Price (ZAR)
		JIC - NPT STRAIGHT	
	I202 - 02 - 02		
	I202 - 02 - 04		
	I202 - 02 - 05		
	I202 - 02 - 06		
	I202 - 04 - 04		
	I202 - 04 - 05		
	I202 - 04 - 06		
	I202 - 04 - 08		
	I202 - 06 - 04		
	I202 - 06 - 05		
	I202 - 06 - 06		
	I202 - 06 - 08		
	I202 - 06 - 06		
	I202 - 08 - 10		
	I202 - 08 - 06		
I202 - 08 - 08			
I202 - 08 - 10			
I202 - 12 - 06			
I202 - 12 - 10			
I202 - 12 - 12			
I202 - 12 - 16			
		JIC STRAIGHT	
	I202 - 16 - 10		
	I202 - 16 - 12		
	I202 - 16 - 16		
	I202 - 16 - 20		
	I202 - 20 - 16		
	I202 - 20 - 20		
	I202 - 20 - 24		
	I202 - 24 - 20		
	I202 - 24 - 24		
	I202 - 20 - 32		
	I202 - 32 - 32		
I202 - 32 - 24			
I202 - 24 - 34			
		JIC - JIC STRAIGHT	
I204 - 04 - 04			
I204 - 05 - 05			
I204 - 06 - 04			
I204 - 06 - 06			
I204 - 08 - 06			
I204 - 08 - 08			
I204 - 10 - 08			
I204 - 10 - 10			
I204 - 12 - 10			

	Part No.	Description	Price (ZAR)
	1204 - 12 - 12		
	1204 - 16 - 16		
	1204 - 20 - 20		
	1204 - 24 - 24		
	1204 - 32 - 32		
		NPT - JIC 45	
	1206 - 02 - 04		
	1206 - 02 - 05		
	1206 - 02 - 06		
	1206 - 04 - 04		
	1206 - 04 - 05		
	1206 - 04 - 06		
	1206 - 04 - 08		
	1206 - 06 - 04		
	1206 - 06 - 06		
	1206 - 06 - 08		
	1206 - 06 - 10		
	1206 - 08 - 06		
	1206 - 08 - 08		
	1206 - 08 - 10		
	1206 - 08 - 12		
	1206 - 12 - 08		
	1206 - 12 - 10		
	1206 - 12 - 12		
	1206 - 12 - 14		
	1206 - 12 - 16		
1206 - 16 - 12			
1206 - 16 - 16			
1206 - 20 - 20			
1206 - 24 - 24			
1206 - 32 - 32			
		NPT - JIC 90	
	1208 - 02 - 02		
	1208 - 02 - 04		
	1208 - 02 - 05		
	1208 - 02 - 06		
	1208 - 04 - 04		
	1208 - 04 - 05		
	1208 - 04 - 06		
	1208 - 04 - 08		
	1208 - 06 - 04		
	1208 - 06 - 05		
	1208 - 06 - 06		
	1208 - 06 - 08		
	1208 - 06 - 10		
	1208 - 08 - 04		
1208 - 08 - 06			

Adaptors

	Part No.	Description	Price (ZAR)
	I208 - 08 - 08		
	I208 - 08 - 10		
	I208 - 12 - 08		
	I208 - 12 - 10		
	I208 - 12 - 12		
	I208 - 12 - 14		
	I208 - 12 - 16		
	I208 - 16 - 12		
	I208 - 16 - 16		
	I208 - 16 - 20		
	I208 - 20 - 16		
	I208 - 20 - 20		
	I208 - 20 - 24		
	I208 - 24 - 20		
	I208 - 24 - 24		
	I208 - 32 - 32		
NPT MALE / FEMALE			
	I210 - 02 - 02		
	I210 - 02 - 04		
	I210 - 04 - 02		
	I210 - 04 - 04		
	I210 - 04 - 06		
	I210 - 06 - 04		
	I210 - 06 - 06		
	I210 - 06 - 08		
	I210 - 08 - 04		
	I210 - 08 - 05		
	I210 - 08 - 08		
	I210 - 08 - 12		
	I210 - 12 - 06		
	I210 - 12 - 12		
	I210 - 12 - 16		
	I210 - 16 - 12		
	I210 - 16 - 16		
	I210 - 16 - 20		
I210 - 20 - 16			
I210 - 20 - 20			
I210 - 20 - 24			
I210 - 24 - 20			
I210 - 24 - 24			
I210 - 32 - 32			

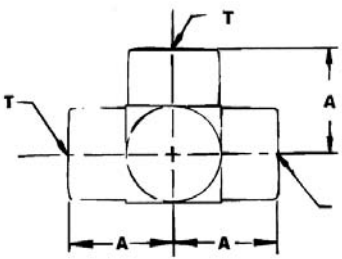
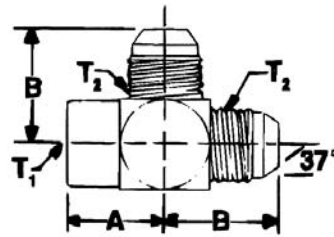
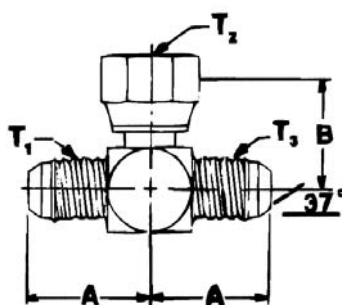
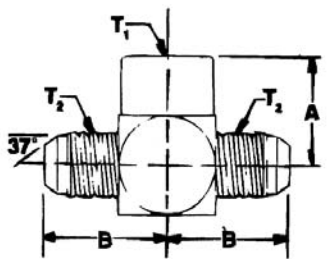
	Part No.	Description	Price (ZAR)
		NPT MALE / FEMALE JIC	
	1211 - 02 - 04		
	1211 - 04 - 04		
	1211 - 04 - 06		
	1211 - 06 - 06		
	1211 - 06 - 08		
	1211 - 08 - 08		
	1211 - 08 - 10		
	1211 - 12 - 12		
1211 - 16 - 16			
		NPT FEMALE / NPT FEMALE	
	1212 - 02 - 02		
	1212 - 02 - 04		
	1212 - 04 - 04		
	1212 - 04 - 06		
	1212 - 06 - 04		
	1212 - 06 - 06		
	1212 - 06 - 08		
	1212 - 08 - 06		
	1212 - 08 - 08		
	1212 - 08 - 12		
	1212 - 12 - 08		
	1212 - 12 - 12		
	1212 - 16 - 16		
1212 - 20 - 20			
1212 - 24 - 24			
1212 - 32 - 32			
		NPT / NPT FEMALE 45	
	1214 - 02 - 02		
	1214 - 04 - 04		
	1214 - 06 - 04		
	1214 - 06 - 06		
	1214 - 08 - 04		
	1214 - 08 - 06		
	1214 - 08 - 08		
	1214 - 08 - 12		
	1214 - 12 - 08		
	1214 - 12 - 12		
	1214 - 12 - 16		
	1214 - 16 - 12		
	1214 - 16 - 16		
	1214 - 16 - 20		
	1214 - 20 - 16		
	1214 - 20 - 20		
1214 - 24 - 24			
1214 - 32 - 32			

Adaptors

	Part No.	Description	Price (ZAR)
		JIC FEMALE / MALE	
	1215 - 04 - 04		
	1215 - 04 - 06		
	1215 - 06 - 06		
	1215 - 06 - 08		
	1215 - 08 - 08		
	1215 - 08 - 10		
	1215 - 12 - 12		
	1215 - 12 - 14		
	1215 - 16 - 16		
			NPT FEMALE / FEMALE 90
	1216 - 02 - 02		
	1216 - 04 - 04		
	1216 - 06 - 04		
	1216 - 06 - 06		
	1216 - 06 - 08		
	1216 - 08 - 06		
	1216 - 08 - 08		
	1216 - 12 - 08		
	1216 - 12 - 12		
	1216 - 16 - 16		
	1216 - 20 - 20		
	1216 - 24 - 24		
	1216 - 32 - 32		
		NPT FEMALE / MALE 90	
	1218 - 02 - 02		
	1218 - 02 - 04		
	1218 - 04 - 02		
	1218 - 04 - 04		
	1218 - 04 - 06		
	1218 - 06 - 04		
	1218 - 06 - 06		
	1218 - 06 - 08		
	1218 - 08 - 04		
	1218 - 08 - 06		
	1218 - 08 - 08		
	1218 - 08 - 12		
	1218 - 12 - 08		
	1218 - 12 - 12		
	1218 - 12 - 16		
	1218 - 16 - 12		
	1218 - 16 - 16		
	1218 - 16 - 20		
	1218 - 20 - 16		
	1218 - 20 - 20		
1218 - 24 - 20			
1218 - 24 - 24			
1218 - 32 - 32			

	Part No.	Description	Price (ZAR)
JIC MALE T-PIECE			
	1220 - 04 - 04 - 04		
	1220 - 05 - 05 - 05		
	1220 - 06 - 06 - 06		
	1220 - 08 - 08 - 08		
	1220 - 10 - 10 - 10		
	1220 - 12 - 12 - 12		
	1220 - 16 - 16 - 16		
	1220 - 20 - 20 - 20		
	1220 - 24 - 24 - 24		
	JIC T-PIECE NPT MALE ON BRANCH		
	1221 - 02 - 04 - 04		
	1221 - 02 - 05 - 05		
	1221 - 04 - 04 - 04		
	1221 - 04 - 05 - 05		
	1221 - 04 - 06 - 06		
	1221 - 06 - 06 - 06		
	1221 - 06 - 08 - 08		
	1221 - 08 - 08 - 08		
	1221 - 08 - 10 - 10		
	1221 - 12 - 12 - 12		
	1221 - 14 - 14 - 14		
	1221 - 16 - 16 - 16		
	1221 - 20 - 20 - 20		
	1221 - 24 - 24 - 24		
	1221 - 32 - 32 - 32		
JIC T-PIECE NPT MALE ON RUN			
	1224 - 02 - 04 - 04		
	1224 - 02 - 05 - 05		
	1224 - 04 - 04 - 04		
	1224 - 04 - 06 - 06		
	1224 - 06 - 06 - 06		
	1224 - 06 - 08 - 08		
	1224 - 08 - 08 - 08		
	1224 - 08 - 10 - 10		
	1224 - 12 - 12 - 12		
	1224 - 12 - 14 - 14		
	1224 - 16 - 16 - 16		
	1224 - 20 - 20 - 20		
	1224 - 24 - 24 - 24		

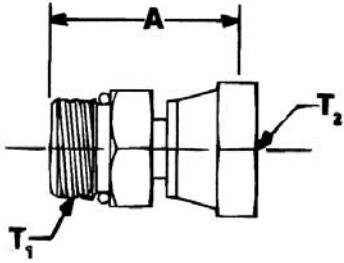
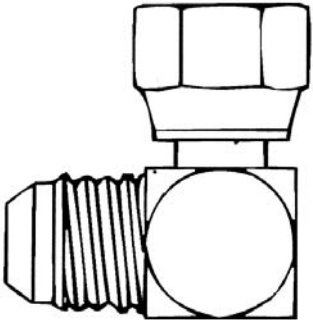
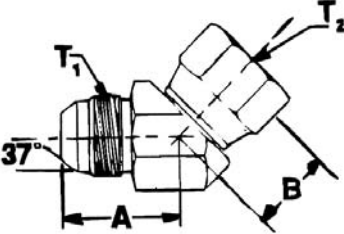
Adaptors

	Part No.	Description	Price (ZAR)
		FEMALE NPT T-PIECE	
	1225 - 02 - 02 - 02		
	1225 - 04 - 04 - 04		
	1225 - 06 - 06 - 06		
	1225 - 08 - 08 - 08		
	1225 - 12 - 12 - 12		
	1225 - 16 - 16 - 16		
	1225 - 20 - 20 - 20		
	1225 - 24 - 24 - 24		
		JIC T-PIECE NPT FEMALE ON RUN	
	1226 - 02 - 04 - 04		
	1226 - 04 - 06 - 06		
	1226 - 06 - 08 - 08		
	1226 - 08 - 10 - 10		
	1226 - 12 - 12 - 12		
	1226 - 12 - 14 - 14		
	1226 - 16 - 16 - 16		
	1226 - 20 - 20 - 20		
1226 - 24 - 24 - 24			
		JIC T-PIECE FEMALE ON BRANCH	
	1227 - 04 - 04 - 04		
	1227 - 05 - 05 - 05		
	1227 - 06 - 06 - 06		
	1227 - 08 - 08 - 08		
	1227 - 10 - 10 - 10		
	1227 - 12 - 12 - 12		
	1227 - 14 - 14 - 14		
	1227 - 16 - 16 - 16		
1227 - 20 - 20 - 20			
1227 - 24 - 24 - 24			
		JIC T/NPT FEMALE ON BRANCH	
	1228 - 02 - 04 - 04		
	1228 - 02 - 05 - 05		
	1228 - 04 - 04 - 04		
	1228 - 04 - 06 - 06		
	1228 - 06 - 06 - 06		
	1228 - 06 - 08 - 08		
	1228 - 08 - 08 - 08		
	1228 - 08 - 10 - 10		
1228 - 12 - 12 - 12			
1228 - 20 - 20 - 20			
1228 - 24 - 24 - 24			

	Part No.	Description	Price (ZAR)
	1229 - 04 - 04 - 04	JIC CROSS	
	1229 - 05 - 05 - 05		
	1229 - 06 - 06 - 06		
	1229 - 08 - 08 - 08		
	1229 - 10 - 10 - 10		
	1229 - 12 - 12 - 12		
	1229 - 14 - 14 - 14		
	1229 - 16 - 16 - 16		
	1229 - 20 - 20 - 20		
	1229 - 24 - 24 - 24		
			1230 - 02 - 04
1230 - 02 - 05			
1230 - 04 - 04			
1230 - 04 - 05			
1230 - 04 - 06			
1230 - 06 - 06			
1230 - 06 - 08			
1230 - 06 - 10			
1230 - 08 - 08			
1230 - 08 - 10			
1230 - 12 - 12			
1230 - 12 - 14			
1230 - 16 - 16			
1230 - 20 - 20			
1230 - 24 - 24			
1230 - 32 - 32			
	1231 - 04 - 04	JIC SAE STRAIGHT	
	1231 - 04 - 05		
	1231 - 04 - 06		
	1231 - 04 - 08		
	1231 - 04 - 10		
	1231 - 05 - 04		
	1231 - 05 - 05		
	1231 - 05 - 06		
	1231 - 06 - 04		
	1231 - 06 - 05		
	1231 - 06 - 06		
	1231 - 06 - 08		
	1231 - 06 - 10		
	1231 - 08 - 06		
	1231 - 08 - 08		
	1231 - 08 - 10		
	1231 - 08 - 12		
	1231 - 10 - 08		
	1231 - 10 - 10		

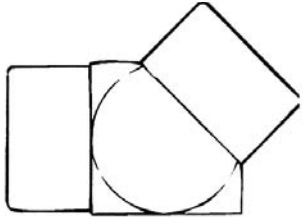
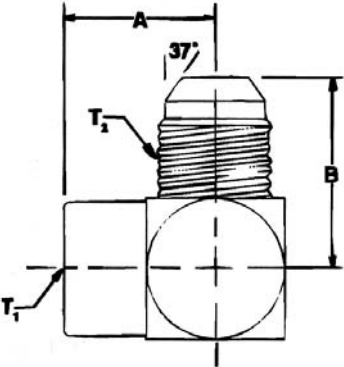
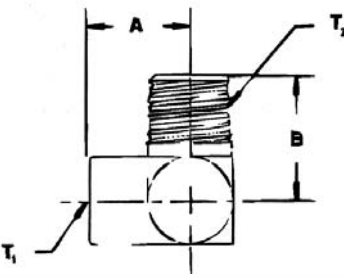
Adaptors

	Part No.	Description	Price (ZAR)
	1231 - 10 - 12		
	1231 - 10 - 16		
	1231 - 12 - 08		
	1231 - 12 - 10		
	1231 - 12 - 12		
	1231 - 12 - 14		
	1231 - 12 - 16		
	1231 - 12 - 20		
	1231 - 14 - 14		
	1231 - 16 - 08		
	1231 - 16 - 10		
	1231 - 16 - 12		
	1231 - 16 - 14		
	1231 - 16 - 16		
	1231 - 16 - 20		
	1231 - 20 - 16		
	1231 - 20 - 20		
	1231 - 20 - 24		
1231 - 24 - 20			
1231 - 24 - 24			
1231 - 24 - 32			
1231 - 32 - 24			
1231 - 32 - 32			
		JIC / SAE STRAIGHT LONG	
	1231 - LO - 06 - 06		
	1231 - LO - 08 - 08		
	1231 - LO - 10 - 10		
	1231 - LO - 12 - 12		
	1231 - LO - 16 - 16		
		JIC MALE JIC MALE 90 ELB	
	1234 - 04 - 04		
	1234 - 05 - 05		
	1234 - 06 - 04		
	1234 - 06 - 06		
	1234 - 08 - 08		
	1234 - 10 - 10		
	1234 - 12 - 12		
	1234 - 14 - 14		
	1234 - 16 - 16		
	1234 - 20 - 20		
	1234 - 24 - 24		
	1234 - 32 - 32		

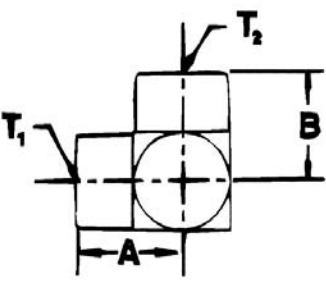
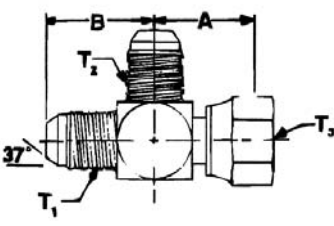
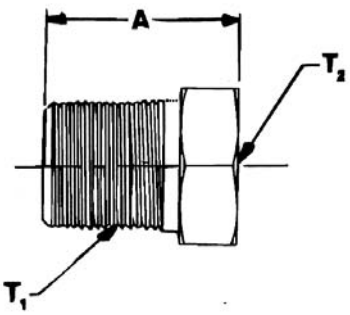
	Part No.	Description	Price (ZAR)
		M / SAE OR / B-NPT F/M SWIVEL	
	I235 - 04 - 04		
	I235 - 05 - 04		
	I235 - 06 - 04		
	I235 - 06 - 06		
	I235 - 08 - 04		
	I235 - 08 - 06		
	I235 - 08 - 08		
	I235 - 08 - 12		
	I235 - 10 - 06		
	I235 - 10 - 08		
	I235 - 10 - 12		
	I235 - 12 - 08		
	I235 - 12 - 12		
	I235 - 12 - 16		
	I235 - 14 - 12		
	I235 - 16 - 12		
	I235 - 16 - 16		
	I235 - 20 - 12		
	I235 - 20 - 16		
I235 - 20 - 20			
I235 - 24 - 24			
I235 - 32 - 32			
		MALE JIC-FEMALE JIC 90 ELB	
	I236 - 04 - 04		
	I236 - 05 - 05		
	I236 - 06 - 06		
	I236 - 08 - 08		
	I236 - 10 - 10		
	I236 - 12 - 12		
	I236 - 14 - 14		
	I236 - 16 - 16		
	I236 - 20 - 20		
I236 - 24 - 24			
		MALE JIC-FEMALE JIC 45 ELB	
	I237 - 04 - 04		
	I237 - 06 - 06		
	I237 - 08 - 08		
	I237 - 10 - 10		
	I237 - 12 - 12		
	I237 - 16 - 16		
	I237 - 20 - 20		
I237 - 24 - 24			

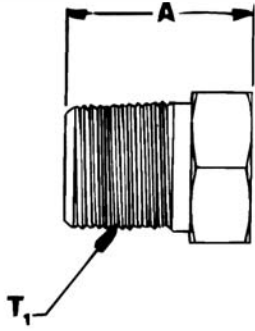
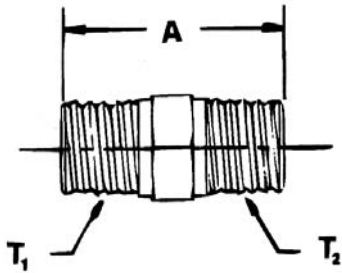
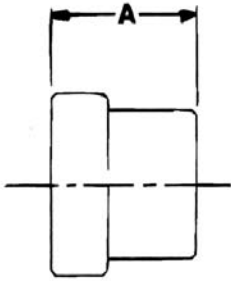
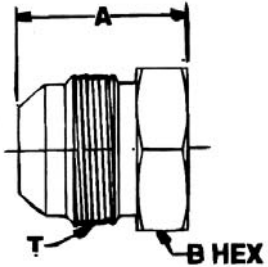
Adaptors

	Part No.	Description	Price (ZAR)
		JIC SAE 90 MALE	
	1238 - 04 - 04		
	1238 - 04 - 05		
	1238 - 04 - 06		
	1238 - 05 - 04		
	1238 - 05 - 05		
	1238 - 05 - 06		
	1238 - 06 - 04		
	1238 - 06 - 05		
	1238 - 06 - 06		
	1238 - 06 - 08		
	1238 - 08 - 06		
	1238 - 08 - 08		
	1238 - 08 - 10		
	1238 - 08 - 12		
	1238 - 10 - 06		
	1238 - 10 - 08		
	1238 - 10 - 10		
	1238 - 10 - 12		
	1238 - 12 - 08		
	1238 - 12 - 10		
	1238 - 12 - 12		
	1238 - 12 - 16		
	1238 - 16 - 12		
	1238 - 16 - 16		
1238 - 16 - 20			
1238 - 20 - 16			
1238 - 20 - 20			
1238 - 20 - 24			
1238 - 24 - 24			
		JIC SAE 45 MALE	
	1240 - 04 - 04		
	1240 - 05 - 05		
	1240 - 06 - 06		
	1240 - 06 - 08		
	1240 - 08 - 06		
	1240 - 08 - 08		
	1240 - 08 - 10		
	1240 - 10 - 08		
	1240 - 10 - 10		
	1240 - 10 - 12		
	1240 - 12 - 12		
	1240 - 12 - 16		
	1240 - 16 - 12		
	1240 - 20 - 20		
	1240 - 24 - 24		
	1240 - 32 - 32		

	Part No.	Description	Price (ZAR)
		NPT FEMALE 45	
	I241 - 04 - 04		
	I241 - 06 - 06		
	I241 - 08 - 08		
	I241 - 12 - 12		
	I241 - 16 - 16		
		MALE 90 FEMALE NPT	
	I242 - 02 - 04		
	I242 - 02 - 05		
	I242 - 02 - 06		
	I242 - 04 - 04		
	I242 - 04 - 05		
	I242 - 04 - 06		
	I242 - 06 - 06		
	I242 - 06 - 08		
	I242 - 08 - 08		
	I242 - 08 - 10		
	I242 - 12 - 12		
	I242 - 16 - 16		
	I242 - 20 - 20		
	I242 - 24 - 24		
	I242 - 32 - 32		
		MALE FEMALE 90 NPT	
	I243 - 02 - 02		
	I243 - 02 - 04		
	I243 - 04 - 02		
	I243 - 04 - 04		
	I243 - 04 - 06		
	I243 - 06 - 04		
	I243 - 06 - 06		
	I243 - 06 - 08		
	I243 - 08 - 06		
	I243 - 08 - 08		
	I243 - 08 - 12		
	I243 - 12 - 08		
	I243 - 12 - 12		
	I243 - 16 - 16		
	I243 - 20 - 20		

Adaptors

	Part No.	Description	Price (ZAR)
		FEMALE NPT 90	
	I245 - 02 - 02		
	I245 - 04 - 02		
	I245 - 04 - 04		
	I245 - 06 - 04		
	I245 - 06 - 06		
	I245 - 08 - 06		
	I245 - 08 - 08		
	I245 - 08 - 12		
	I245 - 12 - 12		
	I245 - 16 - 16		
	I245 - 20 - 20		
	I245 - 24 - 24		
			JICT PIECE FEMALE ON RUN
	I248 - 04 - 04 - 04		
	I248 - 05 - 05 - 05		
	I248 - 06 - 06 - 06		
	I248 - 08 - 08 - 08		
	I248 - 10 - 10 - 10		
	I248 - 12 - 12 - 12		
	I248 - 16 - 16 - 16		
	I248 - 20 - 20 - 20		
	I248 - 24 - 24 - 24		
		NPT REDUCING BRUSH	
	I250 - 04 - 02		
	I250 - 06 - 02		
	I250 - 06 - 04		
	I250 - 08 - 04		
	I250 - 08 - 06		
	I250 - 12 - 04		
	I250 - 12 - 06		
	I250 - 12 - 08		
	I250 - 16 - 04		
	I250 - 16 - 06		
	I250 - 16 - 08		
	I250 - 16 - 12		
	I250 - 20 - 08		
	I250 - 20 - 12		
	I250 - 20 - 16		
	I250 - 24 - 12		
I250 - 24 - 16			
I250 - 24 - 20			
I250 - 32 - 16			
I250 - 32 - 20			
I250 - 32 - 24			

	Part No.	Description	Price (ZAR)
		NPT MALE PLUG	
	1251 - 02		
	1251 - 04		
	1251 - 06		
	1251 - 08		
	1251 - 12		
	1251 - 16		
	1251 - 20		
	1251 - 24		
	1251 - 32		
		NPT MALE NIPPLE	
	1252 - 02 - 02		
	1252 - 04 - 02		
	1252 - 04 - 04		
	1252 - 06 - 02		
	1252 - 06 - 04		
	1252 - 06 - 06		
	1252 - 08 - 04		
	1252 - 08 - 06		
	1252 - 08 - 08		
	1252 - 12 - 08		
	1252 - 12 - 12		
	1252 - 16 - 12		
	1252 - 16 - 16		
	1252 - 20 - 16		
	1252 - 20 - 20		
1252 - 24 - 24			
1252 - 32 - 32			
		JIC SLEEVE	
	1253 - 04		
	1253 - 05		
	1253 - 06		
	1253 - 08		
	1253 - 10		
	1253 - 12		
	1253 - 16		
	1253 - 20		
1253 - 24			
		JIC MALE PLUG	
	1254 - 04		
	1254 - 05		
	1254 - 06		
	1254 - 08		
	1254 - 10		
	1254 - 12		
	1254 - 16		
	1254 - 20		
	1254 - 24		
1254 - 32			

Adaptors

	Part No.	Description	Price (ZAR)
		SAE MALE PLUG	
	1255 - 03		
	1255 - 04		
	1255 - 05		
	1255 - 06		
	1255 - 08		
	1255 - 10		
	1255 - 12		
	1255 - 14		
	1255 - 16		
	1255 - 20		
	1255 - 24		
1255 - 32			
		NPT MALE-NPT F/M SWIVEL T	
	1258 - 02 - 02 - 02		
	1258 - 04 - 04 - 04		
	1258 - 06 - 04 - 04		
	1258 - 06 - 06 - 06		
	1258 - 08 - 04 - 04		
	1258 - 08 - 06 - 06		
	1258 - 08 - 08 - 08		
	1258 - 12 - 08 - 08		
	1258 - 12 - 12 - 12		
	1258 - 12 - 16 - 16		
	1258 - 16 - 12 - 12		
1258 - 16 - 16 - 16			
1258 - 20 - 20 - 20			
1258 - 24 - 24 - 24			
		NPT RING F/M-NPT F/M SWIVEL T	
	1259 - 02 - 02 - 02		
	1259 - 04 - 04 - 04		
	1259 - 06 - 04 - 04		
	1259 - 06 - 06 - 06		
	1259 - 06 - 08 - 08		
	1259 - 08 - 08 - 08		
		JIC MALE BULKHEAD	
	1260 - 04 - 04		
	1260 - 05 - 05		
	1260 - 06 - 06		
	1260 - 08 - 08		
	1260 - 10 - 10		
	1260 - 12 - 12		
1260 - 16 - 16			

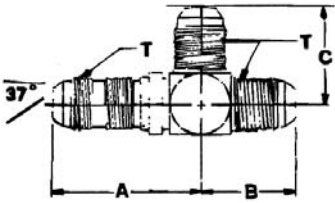
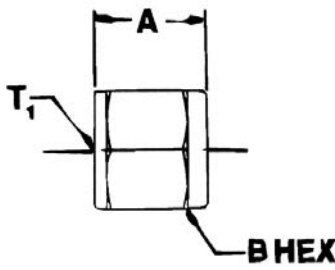
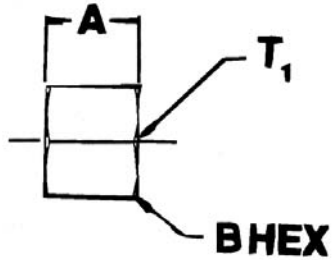
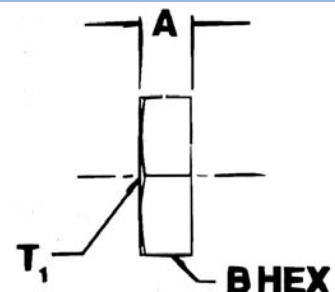
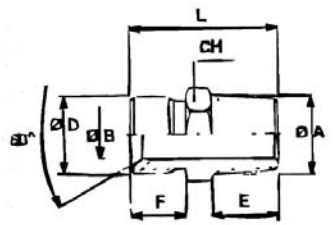
	Part No.	Description	Price (ZAR)
	JIC 90 BULKHEAD		
	1262 - 04 - 04 - 04		
	1262 - 05 - 05 - 05		
	1262 - 06 - 06 - 06		
	1262 - 08 - 08 - 08		
	1262 - 10 - 10 - 10		
	1262 - 12 - 12 - 12		
	1262 - 16 - 16 - 16		
	SAE O RING M/JIC - M/JIC		
	1265 - 04 - 04 - 04		
	1265 - 05 - 05 - 05		
	1265 - 06 - 06 - 06		
	1265 - 08 - 08 - 08		
	1265 - 10 - 10 - 10		
	1265 - 12 - 12 - 12		
	1265 - 14 - 14 - 14		
1265 - 16 - 16 - 16			
	SAE JIC JIC T PIECE		
	1266 - 04 - 04 - 04		
	1266 - 05 - 05 - 05		
	1266 - 06 - 06 - 06		
	1266 - 08 - 08 - 08		
	1266 - 10 - 10 - 10		
	1266 - 12 - 12 - 12		
	1266 - 14 - 14 - 14		
	1266 - 16 - 16 - 16		
	1266 - 20 - 20 - 20		
	FEMALE PIPE MALE O R/BOSS		
	1268 - 02 - 04		
	1268 - 02 - 05		
	1268 - 02 - 06		
	1268 - 04 - 04		
	1268 - 04 - 06		
	1268 - 06 - 06		
	1268 - 06 - 08		
	1268 - 06 - 10		
	1268 - 08 - 06		
	1268 - 08 - 08		
	1268 - 08 - 10		
	1268 - 08 - 12		
	1268 - 12 - 12		
	1268 - 12 - 16		
1268 - 16 - 16			
1268 - 16 - 20			
1268 - 20 - 20			

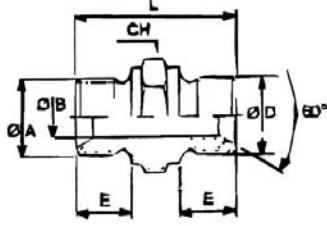
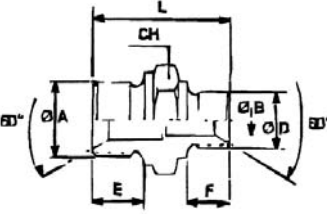
Adaptors

	Part No.	Description	Price (ZAR)
		SAE MALE NPT FEMALE SWIVEL 90	
	1271 - 04 - 04		
	1271 - 06 - 04		
	1271 - 06 - 06		
	1271 - 06 - 08		
	1271 - 08 - 06		
	1271 - 08 - 08		
	1271 - 08 - 12		
	1271 - 10 - 06		
	1271 - 10 - 08		
	1271 - 10 - 12		
	1271 - 12 - 08		
	1271 - 12 - 12		
	1271 - 16 - 12		
	1271 - 16 - 16		
	1271 - 20 - 12		
	1271 - 20 - 20		
		NPT SOCKET	
	1273 - 02 - 02		
	1273 - 04 - 02		
	1273 - 04 - 04		
	1273 - 06 - 04		
	1273 - 06 - 06		
	1273 - 08 - 04		
	1273 - 08 - 06		
	1273 - 08 - 08		
	1273 - 12 - 08		
	1273 - 16 - 12		
	1273 - 16 - 16		
1273 - 20 - 20			
1273 - 24 - 24			
		NPT MALE - FEMALE	
	1274 - 02 - 04		
	1274 - 04 - 06		
	1274 - 06 - 08		
	1274 - 08 - 12		
	1274 - 12 - 16		
	1274 - 16 - 20		

	Part No.	Description	Price (ZAR)
		NPT MALE 90 ELB	
	1275 - 02 - 02		
	1275 - 04 - 04		
	1275 - 06 - 04		
	1275 - 06 - 06		
	1275 - 08 - 06		
	1275 - 08 - 08		
	1275 - 12 - 08		
	1275 - 12 - 12		
	1275 - 16 - 12		
	1275 - 16 - 16		
	1275 - 20 - 20		
		NPT MALE - FEMALE T	
	1276 - 02 - 02 - 02		
	1276 - 04 - 04 - 04		
	1276 - 06 - 06 - 06		
	1276 - 08 - 08 - 08		
	1276 - 12 - 12 - 12		
1276 - 16 - 16 - 16			
		NPT MALE - FEMALE T	
	1278 - 02 - 02 - 02		
	1278 - 04 - 04 - 04		
	1278 - 06 - 06 - 06		
	1278 - 08 - 08 - 08		
	1278 - 12 - 12 - 12		
	1278 - 16 - 16 - 16		
1278 - 20 - 20 - 20			
		NPT FEMALE CROSS	
	1279 - 02 - 02 - 02 - 02		
	1279 - 04 - 04 - 04 - 04		
	1279 - 06 - 06 - 06 - 06		
	1279 - 08 - 08 - 08 - 08		
1279 - 12 - 12 - 12 - 12			
		JIC BULKHEAD T	
	1283 - 04 - 04 - 04		
	1283 - 05 - 05 - 05		
	1283 - 06 - 06 - 06		
	1283 - 08 - 08 - 08		
	1283 - 10 - 10 - 10		
	1283 - 12 - 12 - 12		
1283 - 16 - 16 - 16			

Adaptors

	Part No.	Description	Price (ZAR)
	1284 - 04 - 04 - 04	JIC BULKHEAD RUN T	
	1284 - 05 - 05 - 05		
	1284 - 06 - 06 - 06		
	1284 - 08 - 08 - 08		
	1284 - 10 - 10 - 10		
	1284 - 12 - 12 - 12		
	1284 - 16 - 16 - 16		
	1311 - 04	JIC NUT	
	1311 - 05		
	1311 - 06		
	1311 - 08		
	1311 - 10		
	1311 - 12		
	1311 - 14		
	1311 - 16		
1311 - 20			
1311 - 24			
	1329 - 04	JIC CAP NUT	
	1329 - 05		
	1329 - 06		
	1329 - 08		
	1329 - 10		
	1329 - 12		
	1329 - 14		
	1329 - 16		
1329 - 20			
	1332 - 04	BULKHEAD LOCK NUT	
	1332 - 05		
	1332 - 06		
	1332 - 08		
	1332 - 10		
	1332 - 12		
	1332 - 14		
	1332 - 16		
1332 - 20			
	F III R 1/8	BSP BSPT	
	F III R 1/4		
	F III R 3/8		
	F III R 1/2		
	F III R 3/4		
	F III R 1"		
	F III R 1 1/4		
	F III R 1 1/2		
	F III R 2"		

	Part No.	Description	Price (ZAR)
	BSP BSP		
	F 113 R 1/8		
	F 113 R 1/4		
	F 113 R 3/8		
	F 113 R 1/2		
	F 113 R 5/8		
	F 113 R 3/4		
	F 113 R 1"		
	F 113 R 1 1/4		
	F 113 R 1 1/2		
F 113 R 2"			
	BSP BSP JUMP		
	F 114 R 1/8 x 1/4		
	F 114 R 3/8 x 1/4		
	F 114 R 1/2 x 1/4		
	F 114 R 1/2 x 3/8		
	F 114 R 5/8 x 1/2		
	F 114 R 3/4 x 3/8		
	F 114 R 3/4 x 1/2		
	F 114 R 3/4 x 5/8		
	F 114 R 1" x 1/2		
	F 114 R 1" x 3/4		
	F 114 R 1 1/4 x 3/4		
	F 114 R 1 1/4 x 1"		
	F 114 R 1 1/2 x 1"		
	F 114 R 1 1/2 x 1 1/4		
F 114 R 2" x 1 1/2			
JIC BSP			
MCJB - 04 - 04			
MCJB - 04 - 06			
MCJB - 06 - 04			
MCJB - 06 - 06			
MCJB - 06 - 08			
MCJB - 08 - 06			
MCJB - 08 - 08			
MCJB - 08 - 12			
MCJB - 10 - 08			
MCJB - 10 - 12			
MCJB - 12 - 08			
MCJB - 12 - 12			
MCJB - 16 - 12			
MCJB - 16 - 16			

Adaptors

	Part No.	Description	Price (ZAR)
		SPRING GUARD	
	SG 4		
	SG 6		
	SG 6A		
	SG 8		
	SG 8A		
	SG 10		
	SG 10A		
	SG 12		
	SG 12A		
	SG 16		
	SG 16A		
	SG 20		
	SG 20A		
	SG 24		
	SG 24A		
	SG 32		


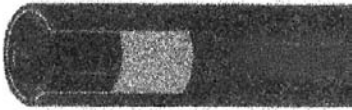
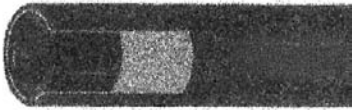
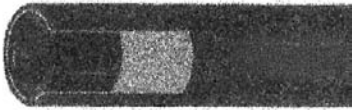
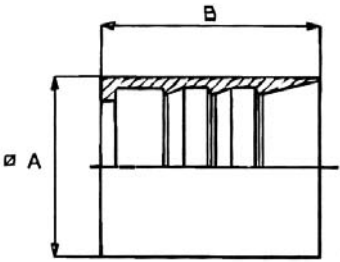
Hose and Hose Fittings



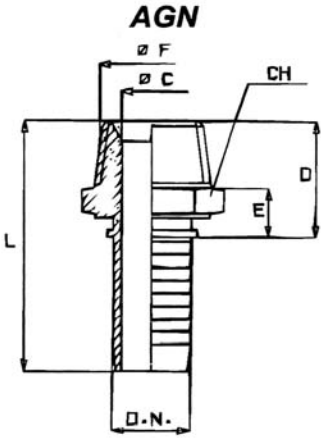
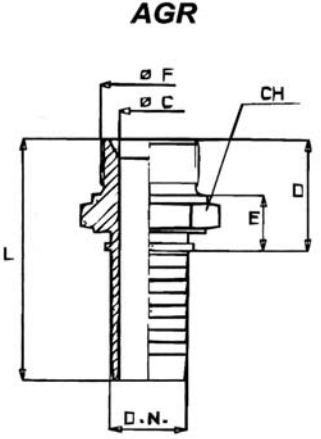
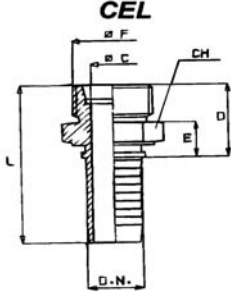
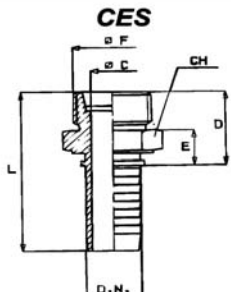
Hose and Hose Fittings

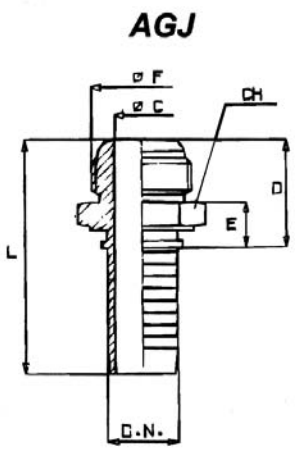
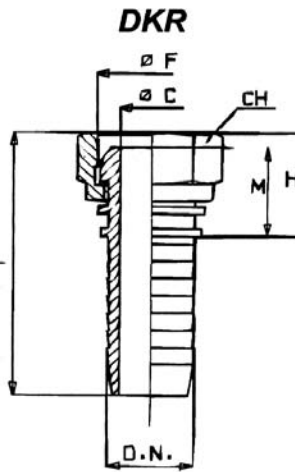
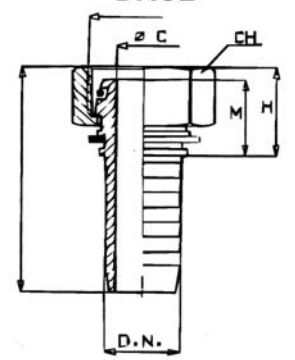
	Part No.	Description	Price (ZAR)
	SAE 100 RIT DIN 20022		
	S471 - 4		
	S471 - 5		
	S471 - 6		
	S471 - 8		
	S471 - 10		
	S471 - 12		
	S471 - 16		
	S471 - 20		
	S471 - 24		
	S471 - 32		
	SAE 100 R2A PVC NITRILE COVER		
	S290 - 4		
	S290 - 6		
	S290 - 8		
	S290 - 10		
	S290 - 12		
	S290 - 16		
	S290 - 20		
	S290 - 24		
	S290 - 32		
		SAE 100 R2AT DIN 20022	
S425 - 4			
S425 - 5			
S425 - 6			
S425 - 8			
S425 - 10			
S425 - 12			
S425 - 16			
S425 - 20			
S425 - 24			
S425 - 32			
	SAE 100 R5 TEXTILE COVER		
	S69 - 4		
	S69 - 5		
	S69 - 6		
	S69 - 8		
	S69 - 10		
	S69 - 12		
	S69 - 16		
	S69 - 20		
	S69 - 24		
	S69 - 32		

Hose and Hose Fittings

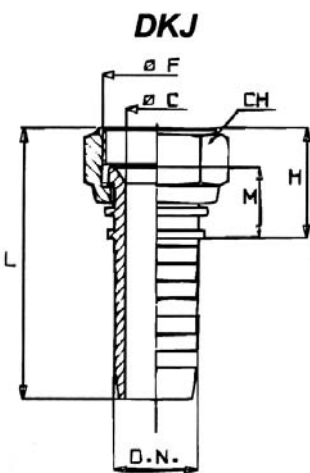
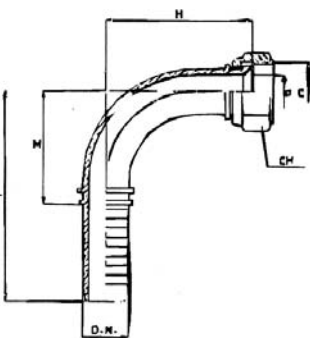
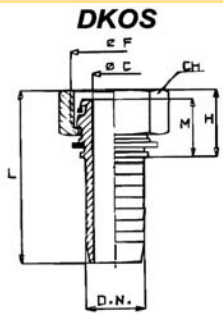
	Part No.	Description	Price (ZAR)
		SAE 100 R12 FOUR SPIRAL HOSE	
	XT3 - 06		
	XT3 - 08		
	XT3 - 10		
	XT3 - 12		
	XT3 - 16		
	XT3 - 20		
	XT3 - 24		
	XT3 - 32		
		PUSH LOCK	
	SI01 - 4		
	SI01 - 6		
	SI01 - 8		
	SI01 - 10		
	SI01 - 12		
		AIR HOSE	
	HOR - 4		
	HOR - 5		
	HOR - 6		
	HOR - 8		
	HOR - 10		
	HOR - 12		
	HOR - 16		
		AIRCON HOSE	
	FREON - 06		
	FREON - 08		
	FREON - 10		
	FREON - 12		
		I & 2 WIRE SKIVE CRIMP FERRULE	
	PF 12 06	-4	
	PF 12 10	-6	
	PF 12 13	-8	
	PF 12 16	-10	
	PF 12 19	-12	
	PF 12 25	-16	
	PF 12 32	-20	
	PF 12 38	-24	
	PF 12 50	-32	
		I & 2 WIRE NON SKIVE CRIMP FERRULE	
	PF 22 06	-4	
	PF 22 08	-5	
	PF 22 10	-6	
	PF 22 13	-8	
PF 22 16	-10		
PF 22 19	-12		
PF 22 25	-16		
PF 22 32	-20		
PF 22 38	-24		
PF 22 50	-32		

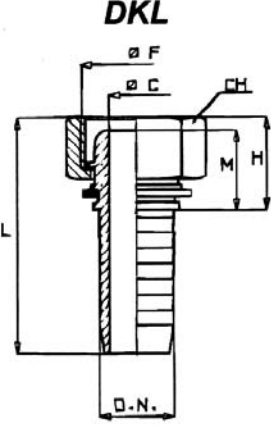
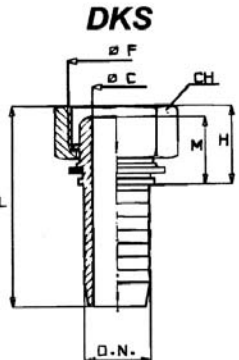
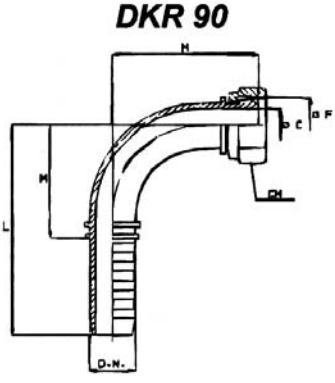
Hose and Hose Fittings

	Part No.	Description	Price (ZAR)
	NPT MALE		
	AGN 1/4 x 06	-4-4	
	AGN 3/8 x 10	-6-6	
	AGN 1/2 x 10	-8-6	
	AGN 1/2 x 13	-8-8	
	AGN 3/4 x 16	-10-12	
	AGN 3/4 x 19	-12-12	
	AGN 1" x 19	-16-12	
	AGN 1" x 25	-16-16	
	AGN 1 1/4 x 25	-20-16	
	AGN 1 1/4 x 32	-20-20	
	AGN 1 1/2 x 38	-24-24	
	AGN 2" x 50	-32-32	
		BSP MALE	
AGR 1/4 x 06		-4-4	
AGR 3/8 x 10		-6-6	
AGR 1/2 x 10		-8-6	
AGR 1/2 x 13		-8-8	
AGR 5/8 x 13		-10-8	
AGR 5/8 x 16		-10-10	
AGR 3/4 x 16		-12-10	
AGR 3/4 x 19		-12-12	
AGR 1" x 19		-16-12	
AGR 1" x 25		-16-16	
AGR 1 1/4 x 25		-20-16	
AGR 1 1/4 x 32		-20-20	
AGR 1 1/2 x 38		-24-24	
AGR 2" x 50	-32-32		
	METRIC MALE LIGHT SERIES		
	CEL 08L x 06	14 x 1.5 - 04	
	CEL 10L x 10	16 x 1.5 - 06	
	CEL 12L x 10	18 x 1.5 - 06	
	CEL 15L x 13	22 x 1.5 - 08	
	CEL 18L x 16	26 x 1.5 - 10	
	CEL 22L x 19	30 x 2.0 - 12	
	CEL 28L x 25	36 x 2.0 - 16	
	CEL 35L x 32	45 x 2.0 - 20	
	CEL 42L x 38	52 x 2.0 - 24	
	METRIC MALE HEAVY SERIES		
	CES 08S x 06	18 x 1.5 - 04	
	CES 10S x 08	20 x 1.5 - 05	
	CES 12S x 10	20 x 1.5 - 06	
	CES 14S x 10	22 x 1.5 - 06	
	CES 16S x 13	24 x 1.5 - 08	
	CES 20S x 16	20 x 2.0 - 10	
	CES 25S x 19	36 x 2.0 - 12	
	CES 30S x 25	42 x 2.0 - 16	
	CES 38S x 32	52 x 2.0 - 20	

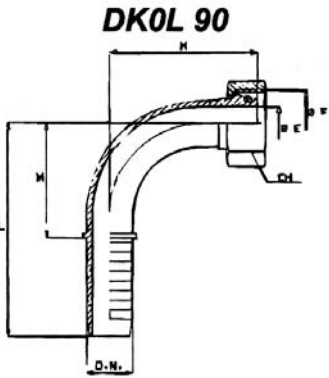
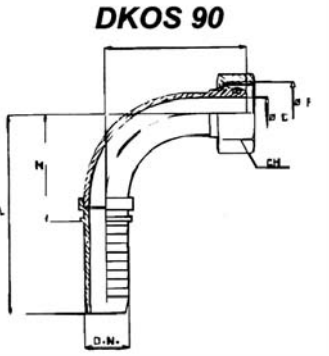
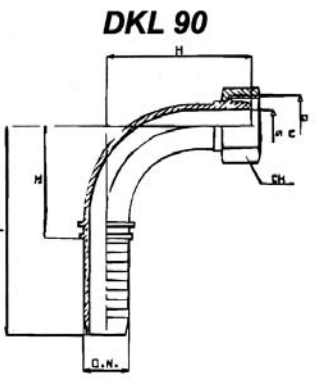
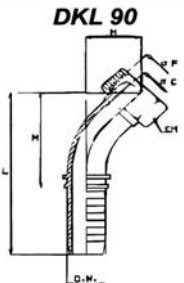
	Part No.	Description	Price (ZAR)
 <p>AGJ</p>	JIC MALE		
	AGJ 7/16-20 x 06	- 4 - 4	
	AGJ 1/2-20 x 06	- 5 - 4	
	AGJ 9/16-18 x 08	- 6 - 5	
	AGJ 9/16-18 x 10	- 6 - 6	
	AGJ 3/4-16 x 10	- 8 - 6	
	AGJ 3/4-16 x 13	- 8 - 8	
	AGJ 7/8 x 10	- 10 - 6	
	AGJ 7/8-14 x 13	- 10 - 8	
	AGJ 7/8-14 x 16	- 10 - 10	
	AGJ 1 1/16-12 x 16	- 12 - 10	
	AGJ 1 1/16-12 x 19	- 12 - 12	
	AGJ 1 5/16-12 x 25	- 16 - 16	
	AGJ 1 5/8 x 32	- 20 - 20	
 <p>DKR</p>	BSP FEMALE		
	DKR 1/4 x 06	- 4 - 4	
	DKR 3/8 x 10	- 6 - 6	
	DKR 1/2 x 10	- 8 - 6	
	DKR 1/2 x 13	- 8 - 8	
	DKR 5/8 x 13	- 10 - 8	
	DKR 5/8 x 16	- 10 - 10	
	DKR 3/4 x 16	- 12 - 10	
	DKR 3/4 x 19	- 12 - 12	
	DKR 1" x 19	- 16 - 12	
	DKR 1" x 25	- 16 - 16	
	DKR 1 1/4 x 25	- 20 - 16	
	DKR 1 1/4 x 32	- 20 - 20	
	DKR 1 1/2 x 38	- 24 - 24	
DKR 2" x 50	- 32 - 32		
 <p>DKOL</p>	METRIC FEMALE LIGHT SERIES WITH O-RING		
	DKOL 08L x 06	14 x 1.5 - 04	
	DKOL 10L x 08	16 x 1.5 - 05	
	DKOL 10L x 10	16 x 1.5 - 06	
	DKOL 12L x 10	18 x 1.5 - 06	
	DKOL 15L x 13	22 x 1.5 - 08	
	DKOL 18L x 16	26 x 1.5 - 10	
	DKOL 22L x 19	30 x 2.0 - 12	
	DKOL 28L x 25	36 x 2.0 - 16	
	DKOL 35L x 32	45 x 2.0 - 20	
DKOL 42L x 38	52 x 2.0 - 24		

Hose and Hose Fittings

	Part No.	Description	Price (ZAR)
	JIC FEMALE		
	DKJ 7/16 - 20 x 06	- 4 - 4	
	DKJ 1/2 - 20 x 06	- 5 - 4	
	DKJ 9/16 - 16 x 06	- 6 - 4	
	DKJ 9/16 - 18 x 08	- 6 - 5	
	DKJ 9/16 - 18 x 10	- 6 - 6	
	DKJ 3/4 - 16 x 10	- 8 - 6	
	DKJ 3/4 - 16 x 13	- 8 - 8	
	DKJ 7/8 x 10	- 10 - 6	
	DKJ 7/8 - 14 x 13	- 10 - 8	
	DKJ 7/8 - 14 x 16	- 10 - 10	
	DKJ 1 1/16 - 12 x 16	- 12 - 16	
	DKJ 1 1/16 - 12 x 19	- 12 - 12	
	DKJ 1 5/16 - 12 x 25	- 16 - 16	
	DKJ 1 5/8 - 12 x 32	- 20 - 20	
	DKJ 1 7/8 - 12 x 38	- 24 - 24	
	DKJ 2 1/2 x 50	- 32 - 32	
		JIC FEMALE 90	
DKJ 90 7/16 x 06		- 4 - 4	
DKJ 90 1/2 x 06		- 5 - 4	
DKJ 90 9/16 x 06		- 6 - 4	
DKJ 90 9/16 x 08		- 6 - 5	
DKJ 90 9/16 x 10		- 6 - 6	
DKJ 90 3/4 x 10		- 8 - 8	
DKJ 90 3/4 x 13		- 8 - 8	
DKJ 90 7/8 x 10		- 10 - 6	
DKJ 90 7/8 x 13		- 10 - 8	
DKJ 90 7/8 x 16		- 10 - 10	
DKJ 90 1 1/16 x 16		- 12 - 10	
DKJ 90 1 1/16 x 19		- 12 - 12	
DKJ 90 1 5/16 x 25		- 16 - 16	
DKJ 90 1 5/8 x 32		- 20 - 20	
DKJ 90 1 7/8 x 38		- 24 - 24	
DKJ 90 2 1/2 x 50		- 32 - 32	
		METRIC FEMALE HEAVY SERIES WITH O-RING	
	DKOS 10S x 06	18 x 1.5 - 04	
	DKOS 12S x 08	20 x 1.5 - 05	
	DKOS 12S x 10	20 x 1.5 - 06	
	DKOS 14S x 06	22 x 1.5 - 06	
	DKOS 16S x 13	24 x 1.5 - 08	
	DKOS 20S x 16	30 x 2.0 - 10	
	DKOS 25S x 19	36 x 2.0 - 12	
	DKOS 30S x 25	42 x 2.0 - 16	
	DKOS 38S x 32	52 x 2.0 - 20	

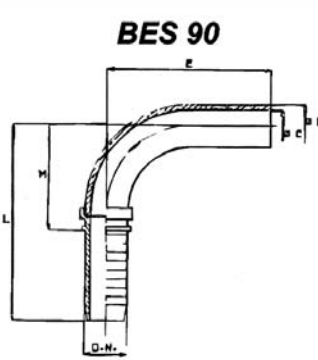
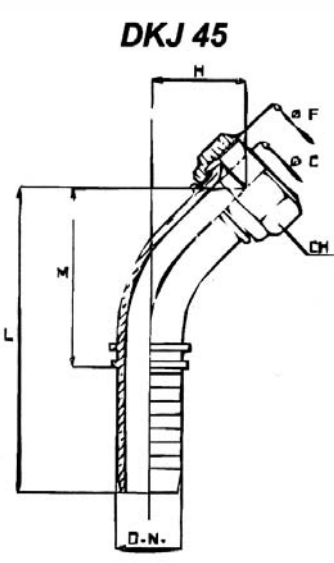
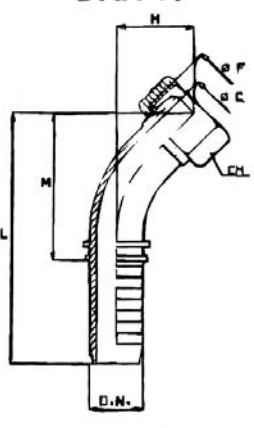
	Part No.	Description	Price (ZAR)
 <p>DKL</p>	METRIC FEMALE LIGHT SERIES		
	DKL 08L x 06	14 x 1.5 - 04	
	DKL 10L x 08	16 x 1.5 - 05	
	DKL 10L x 10	16 x 1.5 - 06	
	DKL 12L x 10	18 x 1.5 - 06	
	DKL 15L x 13	22 x 1.5 - 06	
	DKL 18L x 16	26 x 1.5 - 10	
	DKL 22L x 19	30 x 2.0 - 12	
	DKL 28L x 25	36 x 2.0 - 16	
	DKL 35L x 32	45 x 2.0 - 20	
DKL 42L x 38	52 x 2.0 - 24		
 <p>DKS</p>	METRIC FEMALE HEAVY SERIES		
	DKS 10S x 06	18 x 1.5 - 04	
	DKS 12S x 08	20 x 1.5 - 05	
	DKS 12S x 10	20 x 1.5 - 06	
	DKS 14S x 10	22 x 1.5 - 06	
	DKS 16S x 13	24 x 1.5 - 08	
	DKS 20S x 16	30 x 2.0 - 10	
	DKS 25S x 19	36 x 2.0 - 12	
DKS 30S x 25	42 x 2.0 - 16		
DKS 38S x 32	52 x 2.0 - 20		
 <p>DKR 90</p>	BSP FEMALE 90		
	DKR 90 1/4 x 06	- 4 - 4	
	DKR 90 3/8 x 08	- 4 - 5	
	DKR 90 3/8 x 10	- 6 - 6	
	DKR 90 1/2 x 10	- 8 - 6	
	DKR 90 1/2 x 13	- 8 - 8	
	DKR 90 5/8 x 13	- 10 - 8	
	DKR 90 5/8 x 16	- 10 - 10	
	DKR 90 3/4 x 16	- 12 - 10	
	DKR 90 3/4 x 19	- 12 - 12	
	DKR 90 1" x 19	- 16 - 12	
	DKR 90 1" x 25	- 16 - 16	
	DKR 90 1 1/4 x 25	- 20 - 16	
	DKR 90 1 1/4 x 32	- 20 - 20	
	DKR 90 1 1/2 x 38	- 24 - 24	
DKR 2" x 50	- 32 - 32		

Hose and Hose Fittings

	Part No.	Description	Price (ZAR)
 <p>DKOL 90</p>	METRIC FEMALE 90 LIGHT SERIES WITH O-RING		
	DKOL 90 08L x 06	14 x 1.5 - 04	
	DKOL 90 10L x 08	16 x 1.5 - 05	
	DKOL 90 10L x 10	16 x 1.5 - 06	
	DKOL 90 12L x 10	18 x 1.5 - 06	
	DKOL 90 15L x 13	22 x 1.5 - 08	
	DKOL 90 18L x 16	26 x 1.5 - 10	
	DKOL 90 22L x 19	30 x 2.0 - 12	
	DKOL 90 28L x 25	36 x 2.0 - 16	
	DKOL 90 35L x 32	45 x 2.0 - 20	
	DKOL 90 42L x 38	52 x 2.0 - 24	
 <p>DKOS 90</p>	METRIC FEMALE 90 LIGHT SERIES WITH O-RING		
	DKOS 90 10S x 06	18 x 1.5 - 04	
	DKOS 90 12S x 08	20 x 1.5 - 05	
	DKOS 90 12S x 10	20 x 1.5 - 06	
	DKOS 90 14S x 10	22 x 1.5 - 06	
	DKOS 90 16S x 13	24 x 1.5 - 08	
	DKOS 90 20S x 16	30 x 2.0 - 10	
	DKOS 90 25S x 19	36 x 2.0 - 12	
	DKOS 90 30S x 25	42 x 2.0 - 16	
	DKOS 90 38S x 32	52 x 2.0 - 20	
 <p>DKL 90</p>	METRIC FEMALE 90 LIGHT SERIES		
	DKL 90 08L x 06	14 x 1.5 - 04	
	DKL 90 10L x 08	16 x 1.5 - 05	
	DKL 90 10L x 10	16 x 1.5 - 06	
	DKL 90 12L x 10	18 x 1.5 - 06	
	DKL 90 15L x 13	22 x 1.5 - 10	
	DKL 90 18L x 16	26 x 1.5 - 10	
	DKL 90 22L x 19	30 x 2.0 - 12	
	DKL 90 28L x 25	36 x 2.0 - 16	
	DKL 90 35L x 32	45 x 2.0 - 20	
DKL 90 42L x 38	52 x 2.0 - 24		
 <p>DKS 90</p>	METRIC FEMALE LIGHT SERIES		
	DKS 90 10S x 06	18 x 1.5 - 04	
	DKS 90 12S x 08	20 x 1.5 - 05	
	DKS 90 12S x 10	20 x 1.5 - 06	
	DKS 90 14S x 10	22 x 1.5 - 06	
	DKS 90 16S x 13	24 x 1.5 - 08	
	DKS 90 20S x 16	20 x 2.0 - 10	
DKS 90 25S x 19	35 x 2.0 - 12		

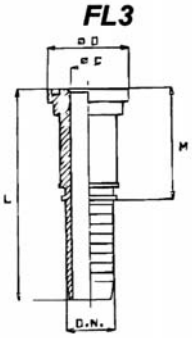
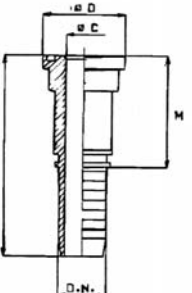
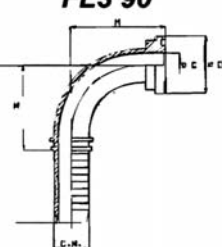
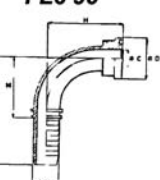
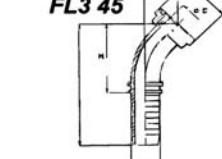
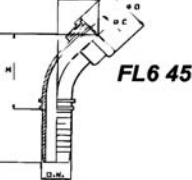
	Part No.	Description	Price (ZAR)
STRAIGHT STANDPIPE LIGHT SERIES			
<p>BEL</p>	BEL 06L x 06		
	BEL 08L x 06		
	BEL 10L x 08		
	BEL 10L x 10		
	BEL 12L x 10		
	BEL 15L x 13		
	BEL 18L x 13		
	BEL 18L x 16		
	BEL 22L x 19		
	BEL 25L x 25		
	BEL 35L x 32		
BEL 42L x 38			
STRAIGHT STANDPIPE HEAVY SERIES			
<p>BES</p>	BES 08S x 06		
	BES 10S x 06		
	BES 12S x 08		
	BES 14S x 10		
	BES 16S x 13		
	BES 20S x 16		
	BES 20S x 19		
	BES 25S x 19		
	BES 30S x 25		
	BES 38S x 32		
STANDPIPE 90 LIGHT SERIES			
<p>BEL 90</p>	BEL 90 06L x 06		
	BEL 90 08L x 06		
	BEL 90 10L x 08		
	BEL 90 10L x 10		
	BEL 90 12L x 10		
	BEL 90 15L x 13		
	BEL 90 18L x 16		
	BEL 90 22L x 19		
	BEL 90 28L x 25		
	BEL 90 35L x 32		
	BEL 90 42L x 38		

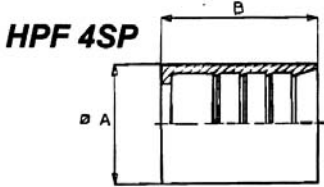
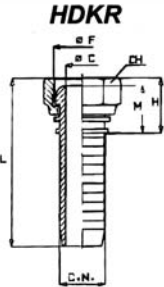
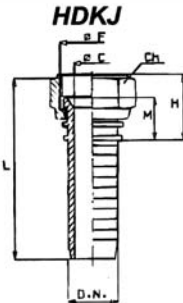
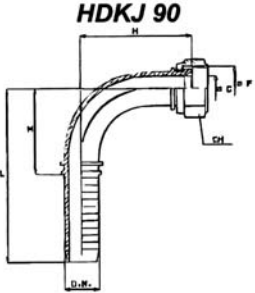
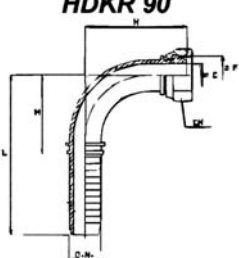
Hose and Hose Fittings

	Part No.	Description	Price (ZAR)
 <p>BES 90</p>		STANDPIPE 90 HEAVY SERIES	
	BES 90 10S x 06		
	BES 90 12S x 08		
	BES 90 14S x 10		
	BES 90 16S x 13		
	BES 90 20S x 16		
	BES 90 20S x 19		
	BES 90 25S x 19		
	BES 90 30S x 25		
	BES 90 38S x 32		
 <p>DKJ 45</p>		JIC FEMALE 45	
	DKJ 45 7/16 x 06	- 4 - 4	
	DKJ 45 1/2 x 06	- 5 - 4	
	DKJ 45 9/16 x 06	- 6 - 4	
	DKJ 45 9/16 x 08	- 6 - 5	
	DKJ 45 9/16 x 10	- 6 - 6	
	DKJ 45 3/4 x 10	- 8 - 6	
	DKJ 45 3/4 x 13	- 8 - 8	
	DKJ 45 7/8 x 10	- 10 - 6	
	DKJ 45 7/8 x 13	- 10 - 8	
	DKJ 45 7/8 x 16	- 10 - 10	
	DKJ 45 1 1/16 x 16	- 12 - 10	
	DKJ 45 1 1/16 x 19	- 12 - 12	
	DKJ 45 1 5/16 x 25	- 16 - 16	
	DKJ 45 1 5/8 x 32	- 20 - 20	
	DKJ 45 1 7/8 x 38	- 24 - 24	
	DKJ 45 2 1/2 x 50	- 32 - 32	
 <p>DKR 45</p>		SWIVEL FEMALE 45	
	DKR 45 1/4 x 06	- 4 - 4	
	DKR 45 3/8 x 10	- 6 - 6	
	DKR 45 1/2 x 10	- 8 - 6	
	DKR 45 1/2 x 13	- 8 - 8	
	DKR 45 5/8 x 13	- 10 - 8	
	DKR 45 5/8 x 16	- 10 - 10	
	DKR 45 3/4 x 16	- 12 - 10	
	DKR 45 3/4 x 19	- 12 - 12	
	DKR 45 1" x 19	- 16 - 12	
	DKR 45 1" x 25	- 16 - 16	
	DKR 45 1 1/4 x 25	- 20 - 16	
	DKR 45 1 1/4 x 32	- 20 - 20	
	DKR 45 1 1/2 x 38	- 24 - 24	
	DKR 45 2" x 50	- 32 - 32	

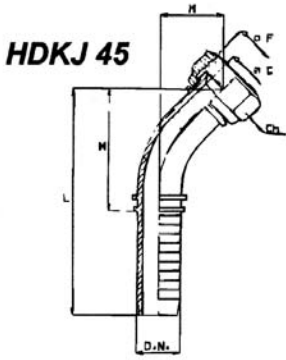
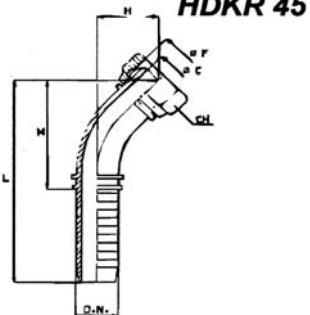
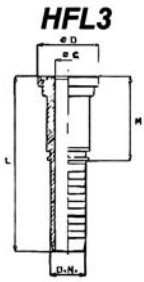
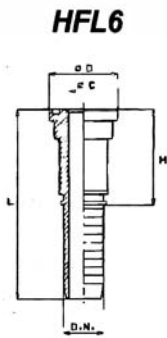
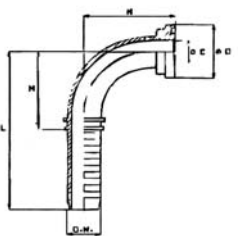
	Part No.	Description	Price (ZAR)
<p>DKOL 45</p>	SWIVEL FEMALE 45 LIGHT SERIES		
	DKOL 45 08L x 06	14 x 1.5 - 04	
	DKOL 45 10L x 10	16 x 1.5 - 06	
	DKOL 45 12L x 10	18 x 1.5 - 06	
	DKOL 45 15L x 13	22 x 1.5 - 10	
	DKOL 45 18L x 16	26 x 1.5 - 10	
	DKOL 45 22L x 19	30 x 2.0 - 12	
	DKOL 45 28L x 25	36 x 2.0 - 16	
	DKOL 45 35L x 32	45 x 2.0 - 20	
	DKOL 45 42L x 38	52 x 2.0 - 24	
<p>DKOS 45</p>	METRIC FEMALE HEAVY SERIES		
	DKOS 45 10S x 06	18 x 1.5 - 04	
	DKOS 45 12S x 08	20 x 1.5 - 05	
	DKOS 45 12S x 10	20 x 1.5 - 06	
	DKOS 45 14S x 10	22 x 1.5 - 06	
	DKOS 45 16S x 13	24 x 1.5 - 08	
	DKOS 45 20S x 16	30 x 2.0 - 10	
	DKOS 45 25S x 19	36 x 2.0 - 12	
	DKOS 45 30S x 25	42 x 2.0 - 16	
	DKOS 45 38S x 32	52 x 2.0 - 20	
<p>DKL 45</p>	METRIC FEMALE 45 LIGHT SERIES		
	DKL 45 08L x 06	14 x 1.5 - 04	
	DKL 45 10L x 08	16 x 1.5 - 05	
	DKL 45 10L x 10	16 x 1.5 - 06	
	DKL 45 12L x 10	18 x 1.5 - 06	
	DKL 45 15L x 13	22 x 1.5 - 08	
	DKL 45 18L x 16	26 x 1.5 - 10	
	DKL 45 22L x 19	30 x 2.0 - 12	
	DKL 45 28L x 25	36 x 2.0 - 16	
	DKL 45 35L x 32	42 x 2.0 - 20	
DKL 45 42L x 38	52 x 2.0 - 24		
<p>DKS 45</p>	METRIC FEMALE 45 HEAVY SERIES		
	DKS 45 10S x 06	18 x 1.5 - 04	
	DKS 45 12S x 08	20 x 1.5 - 05	
	DKS 45 12S x 10	20 x 1.5 - 06	
	DKS 45 14S x 10	22 x 1.5 - 06	
	DKS 45 16S x 13	24 x 1.5 - 08	
	DKS 45 20S x 16	30 x 2.0 - 10	
	DKS 45 25S x 19	36 x 2.0 - 12	
	DKS 45 30S x 25	45 x 2.0 - 16	
	DKS 45 38S x 32	52 x 2.0 - 20	

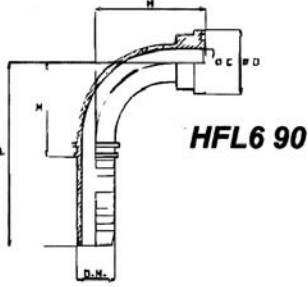
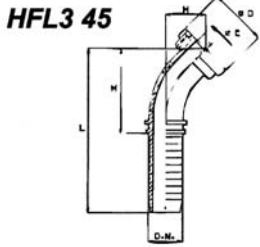
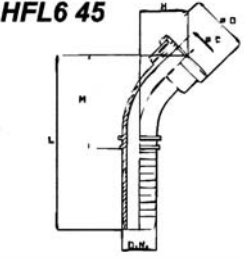
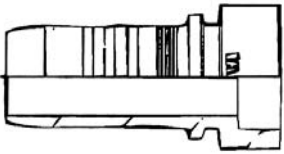
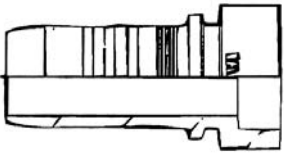
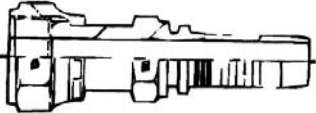
Hose and Hose Fittings

	Part No.	Description	Price (ZAR)
 <p>FL3</p>	SAE STRAIGHT FLANGE 3000 PSI		
		FL 3 1/2 x 13	
		FL 3 3/4 x 19	
		FL 3 1" x 19	
		FL 3 1" x 25	
		FL 3 1 1/4 x 25	
		FL 3 1 1/2 x 32	
		FL 3 1 1/2 x 38	
		FL 3 2" x 38	
		FL 3 2" x 50	
 <p>FL6</p>	SAE STRAIGHT FLANGE 6000 PSI		
		FL 6 1/2 x 13	
		FL 6 3/4 x 19	
		FL 6 1" x 19	
		FL 6 1" x 25	
		FL 6 1 1/4 x 25	
 <p>FL3 90</p>	SAE 90 FLANGE 3000 PSI		
		FL 3 90 1/2 x 13	
		FL 3 90 3/4 x 19	
		FL 3 90 1" x 19	
		FL 3 90 1" x 25	
		FL 3 90 1 1/4 x 25	
		FL 3 90 1 1/4 x 32	
		FL 3 90 1 1/2 x 38	
		FL 3 90 2" x 38	
		FL 3 90 2" x 50	
 <p>FL6 90</p>	SAE 90 FLANGE 6000 PSI		
		FL 6 90 1/2 x 13	
		FL 6 90 3/4 x 19	
		FL 6 90 1" x 19	
		FL 6 90 1" x 25	
		FL 6 90 1 1/4 x 25	
 <p>FL3 45</p>	SAE 45 FLANGE 3000 PSI		
		FL 3 45 1/2 x 13	
		FL 3 45 3/4 x 19	
 <p>FL6 45</p>	SAE 45 FLANGE 6000 PSI		
		FL 6 45 1" x 19	
		FL 6 45 1" x 25	
		FL 6 45 1 1/4 x 25	
		FL 6 45 1 1/4 x 25	

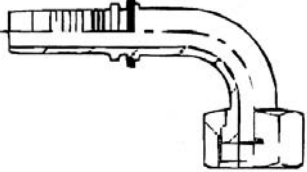
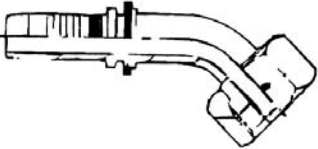

	Part No.	Description	Price (ZAR)
MULTI SPIRAL COLLAR			
 <p>HPF 4SP</p>	HPF x 4SP - 13		
	HPF x 4SP - 16		
	HPF x 4SP - 19		
	HPF x 4SP - 25		
	HPF x 4SP - 32		
	HPF x 4SP - 38		
	HPF x 4SP - 50		
	BSP MULTI SPIRAL FITTING		
 <p>HDKR</p>	HDKR $\frac{5}{8}$ x 16		
	HDKR $\frac{3}{4}$ x 19		
	HDKR 1" x 19		
	HDKR 1" x 25		
	HDKR 1 $\frac{1}{4}$ x 25		
	HDKR 1 $\frac{1}{4}$ x 32		
	HDKR 1 $\frac{1}{2}$ x 38		
	HDKR 2" x 50		
JIC MULTI SPIRAL FITTING			
 <p>HDKJ</p>	HDKJ $\frac{3}{4}$ x 13		
	HDKJ $\frac{7}{8}$ x 13		
	HDKJ $\frac{7}{8}$ x 16		
	HDKJ 1 $\frac{1}{16}$ x 16		
	HDKJ 1 $\frac{1}{16}$ x 19		
	HDKJ 1 $\frac{5}{16}$ x 25		
	HDKJ 1 $\frac{5}{8}$ x 32		
	HDKJ 1 $\frac{7}{8}$ x 38		
	HDKJ 2 $\frac{1}{2}$ x 50		
	JIC 90 SPIRAL FITTING		
 <p>HDKJ 90</p>	HDKJ 90 $\frac{3}{4}$ x 13		
	HDKJ 90 $\frac{7}{8}$ x 13		
	HDKJ 90 $\frac{7}{8}$ x 16		
	HDKJ 90 1 $\frac{1}{16}$ x 16		
	HDKJ 90 1 $\frac{1}{16}$ x 19		
	HDKJ 90 1 $\frac{5}{16}$ x 25		
	HDKJ 90 1 $\frac{5}{8}$ x 32		
	HDKJ 90 1 $\frac{7}{8}$ x 38		
	HDKJ 90 2 $\frac{1}{2}$ x 50		
	BSP 90 SPIRAL FITTING		
 <p>HDKR 90</p>	HDKR 90 $\frac{1}{2}$ x 13		
	HDKR 90 $\frac{5}{8}$ x 16		
	HDKR 90 $\frac{3}{4}$ x 19		
	HDKR 90 1" x 19		
	HDKR 90 1" x 25		
	HDKR 90 1 $\frac{1}{4}$ x 25		
	HDKR 90 1 $\frac{1}{4}$ x 32		
	HDKR 90 1 $\frac{1}{2}$ x 38		

Hose and Hose Fittings

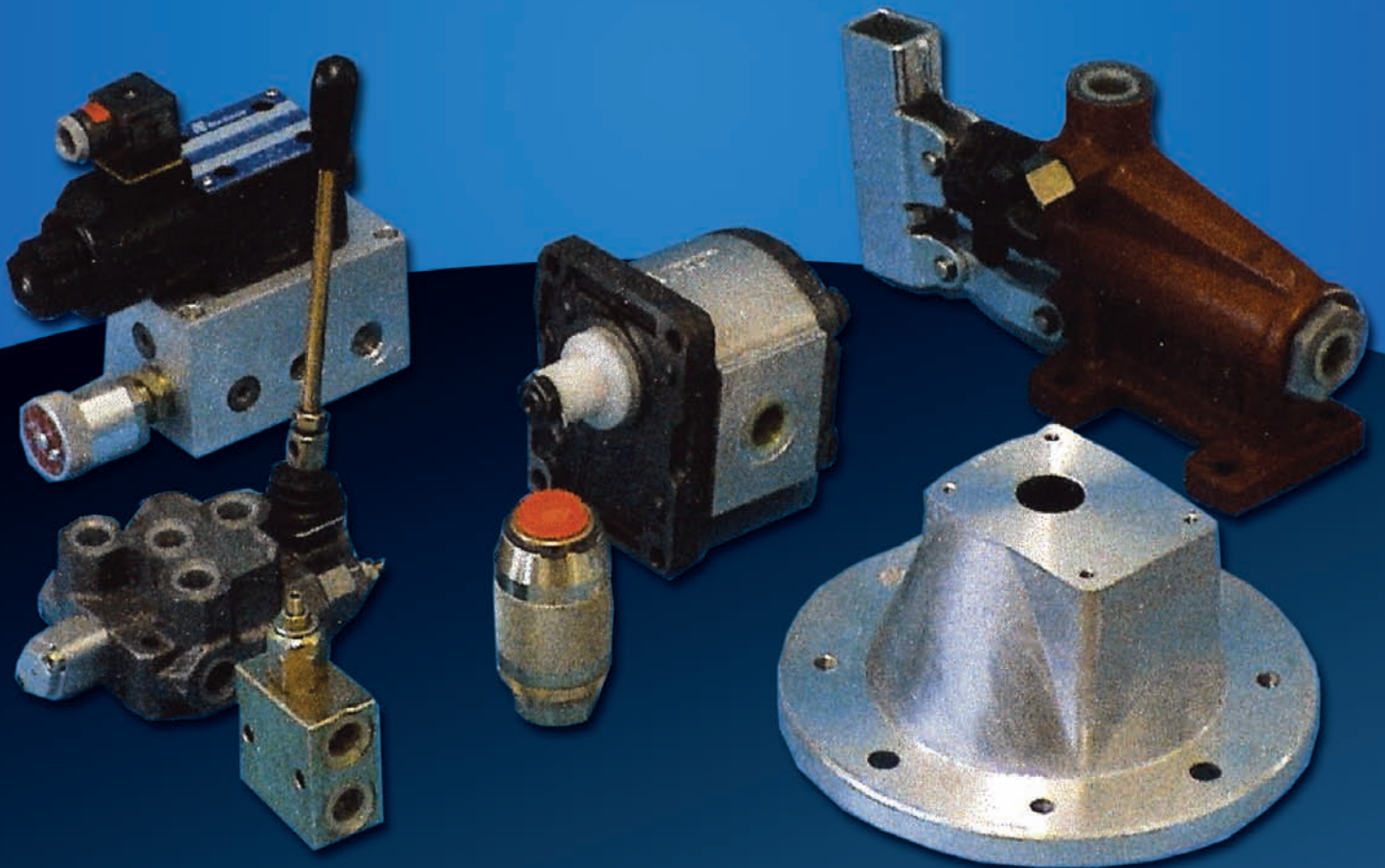
	Part No.	Description	Price (ZAR)
 <p>HDKJ 45</p>		JIC 45 SPIRAL FITTING	
	HDKJ 45 3/4 x 13		
	HDKJ 45 7/8 x 13		
	HDKJ 45 7/8 x 16		
	HDKJ 45 1 1/16 x 16		
	HDKJ 45 1 1/16 x 19		
	HDKJ 45 1 5/8 x 25		
	HDKJ 45 1 5/8 x 32		
	HDKJ 45 1 7/8 x 38		
	HDKJ 45 1 1/2 x 50		
 <p>HDKR 45</p>		BSP 45 SPIRAL FITTING	
	HDKR 45 1/2 x 13		
	HDKR 45 5/8 x 16		
	HDKR 45 3/4 x 19		
	HDKR 45 1" x 19		
	HDKR 45 1" x 25		
	HDKR 45 1 1/4 x 25		
	HDKR 45 1 1/4 x 32		
	HDKR 45 1 1/2 x 38		
	HDKR 45 2" x 50		
 <p>HFL3</p>		MULTI SPIRAL FLANGE 3000 PSI	
	HFL 3 3/4 x 19		
	HFL 3 1" x 19		
	HFL 3 1" x 25		
	HFL 3 1 1/4 x 25		
	HFL 3 1 1/4 x 32		
 <p>HFL6</p>		MULTI SPIRAL FLANGE 6000 PSI	
	HFL 6 1/2 x 13		
	HFL 6 3/4 x 19		
	HFL 6 1" x 19		
	HFL 6 1" x 25		
	HFL 6 1 1/4 x 25		
	HFL 6 1 1/4 x 32		
	HFL 6 1 1/2 x 38		
	HFL 6 2" x 50		
	 <p>HFL3 90</p>		MULTI SPIRAL FLANGE 90 3000 PSI
HFL 3 90 1/2 x 13			
HFL 3 90 3/4 x 19			
HFL 3 90 1" x 19			
HFL 3 90 1" x 25			
HFL 3 90 1 1/4 x 25			
HFL 3 90 1 1/4 x 32			
HFL 3 90 2" x 50			

	Part No.	Description	Price (ZAR)
 <p>HFL6 90</p>	MULTI SPIRAL FLANGE 90 6000 PSI		
	HFL 6 90 1/2 x 13		
	HFL 6 90 3/4 x 19		
	HFL 6 90 1" x 19		
	HFL 6 90 1" x 25		
	HFL 6 90 1 1/4 x 25		
	HFL 6 90 1 1/4 x 32		
	HFL 6 90 1 1/2 x 38		
	HFL 6 90 2" x 50		
 <p>HFL3 45</p>	MULTI SPIRAL FLANGE 45 3000 PSI		
	HFL 3 45 1/2 x 13		
	HFL 3 45 3/4 x 19		
	HFL 3 45 1" x 19		
	HFL 3 45 1" x 25		
	HFL 3 45 1 1/4 x 25		
	HFL 3 45 1 1/4 x 32		
 <p>HFL6 45</p>	MULTI SPIRAL FLANGE 45 6000 PSI		
	HFL 6 45 1/2 x 13		
	HFL 6 45 3/4 x 13		
	HFL 6 45 1" x 19		
	HFL 6 45 1" x 25		
	HFL 6 45 1 1/4 x 25		
	HFL 6 45 1 1/4 x 32		
HFL 6 45 1 1/2 x 38			
HFL 6 45 2" x 50			
	BLANK TAILS		
	STS - 04		
	STS - 05		
	STS - 06		
	STS - 08		
	STS - 10		
	STS - 12		
	STS - 16		
	STS - 20		
	STS - 24		
	SAE		
	S106S6 SW06S6		
	ORF STRAIGHT FEMALE		
	ORF 9/16 x 06		
	ORF 1 1/16 x 10		
	ORF 1 3/16 x 13		
	ORF 1 x 16		
	ORF 1 3/16 x 19		
ORF 1 7/16 x 25			

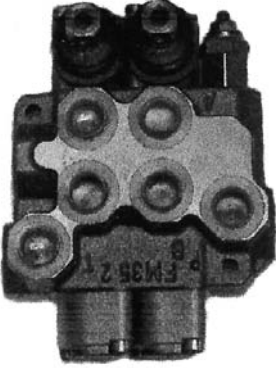


Hose and Hose Fittings

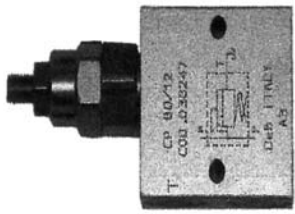
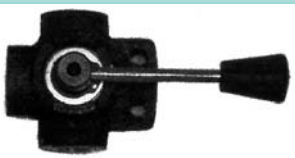
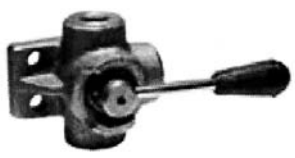


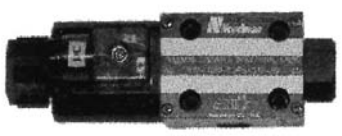
	Part No.	Description	Price (ZAR)
		ORF 90 FEMALE	
		ORF 90 $\frac{9}{16}$ x 06	
		ORF 90 $1 \frac{1}{16}$ x 10	
		ORF 90 $1 \frac{3}{16}$ x 13	
		ORF 90 $1 \frac{3}{16}$ x 19	
		ORF 90 $1 \frac{7}{16}$ x 25	
		ORF 45 FEMALE	
		ORF 45 $\frac{9}{16}$ x 06	
		ORF 45 $1 \frac{3}{16}$ x 13	
		ORF 45 $1 \frac{3}{16}$ x 19	
		ORF 45 $1 \frac{7}{16}$ x 25	
		ORF 45 $1 \frac{11}{16}$ x 19	
		KOMATSU FEMALE	
		K 1406	
		K 1810	
		K 2213	
		K 2416	
		K 3019	
		K 3325	
		K 3632	
	K 4238		


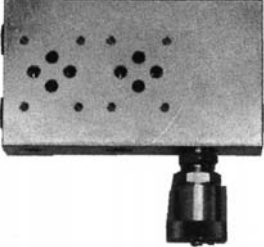
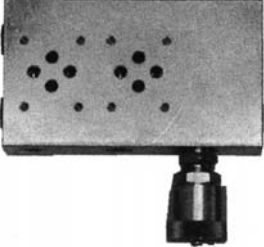
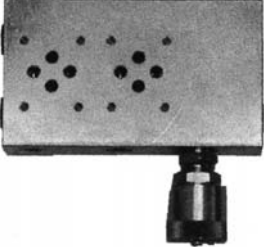
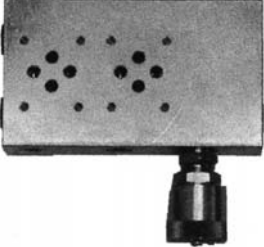
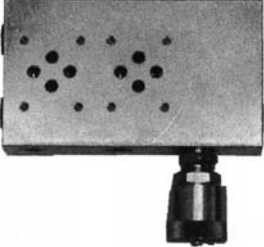
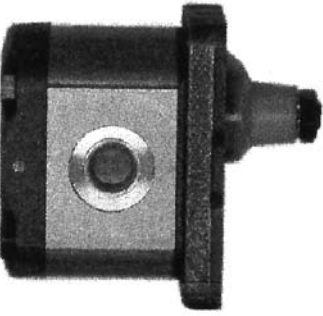
Components



Components




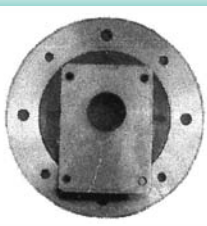
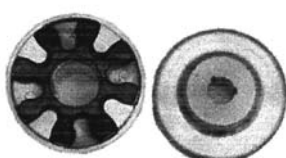
	Part No.	Description	Price (ZAR)
	MONOBLOCK VALVES		
	FM35/1	3/8" Single bank double acting valve	
	FM35/2	3/8" Two bank double acting valve	
	FM35/3	3/8" Three bank double acting valve	
	FM35/4	3/8" Four bank double acting valve	
	FM35/5	3/8" Five bank double acting valve	
	FM35/6	3/8" Six bank double acting valve	
	FM55/1	1/2" Single bank double acting valve	
	FM55/2	1/2" Two bank double acting valve	
	FM55/3	1/2" Three bank double acting valve	
	FM55/4	1/2" Four bank double acting valve	
	FM55/5	1/2" Five bank double acting valve	
	FM55/6	1/2" Six bank double acting valve	
	FM95/1	3/4" Monoblock valve	
	FM95/2	3/4" Two bank monoblock valve	
	FM95/3	3/4" Three bank monoblock valve	
	FM150/1	3/4" Single bank double acting valve	
DETENT KITS / CARRY OVER			
	DET-38	Detent kits FM 35	
	DET-12	Detent kits FM 55	
	DET-34	Detent kits FM 95	
	DET-150-34	Detent kits FM 150	
	OC/O-38	Carry over FM 35	
	OC/O-12	Carry over FM 55	
	OC/O-34	Carry over FM 95	
	OC/O-150-34	Carry over FM 150	
	PILOT CHECK VALVES		
	VDB-14	1/4" Pilot operated double acting check	
	VDB-38	3/8" Pilot operated double acting check	
	VDB-12	1/2" Pilot operated double acting check	
	VDS-38	3/8" Single Pilot check valve	
	VDS-12	1/2" Single Pilot check valve	
	VDS-14	1/4" Shuttle valve	
	OVERCENTRE VALVES		
	OVC/SE/L38	3/8" Single overcentre valve	
	OVC/SE/L12	1/2" Single overcentre valve	
	OWC/DE/L38	3/8" Double overcentre valve	
	OWC/DE/L12	1/2" Double overcentre valve	

	Part No.	Description	Price (ZAR)
	RELIEF VALVES		
	CP/20-38	3/8" In line relief valve	
	CP/80-12	1/2" In line relief valve	
	CP/150-100	1" In line relief valve	
	CP/01-38	3/8" Cross over relief valve	
	CP/01-12	1/2" Cross over relief valve	
	DIVERTERS		
	D3V-38	3/8" Three way diverter	
	D3V-12	1/2" Three way diverter	
	D3V-34	3/4" Three way diverter	
	IN LINE CHECK VALVES		
	VNR-14	1/4" In line check valve	
	VNR-38	3/8" In line check valve	
	VNR-12	3/8" In line check valve	
	VNR-34	3/4" In line check valve	
		CYLINDER BURST VALVES	
VP-38		3/8" Burst valve	
VP-12		1/2" Burst valve	
VP-M-38		3/8" Burst valve	
VP-M-12		1/2" Burst valve	
	HYDRAULIC MOTORS		
	OPI00C	100cc Gerotor motor	
	OPI60C	160cc Gerotor motor	
	OP200C	200cc Gerotor motor	
	OP315C	315cc Gerotor motor	
	HAND PUMPS		
	PAM-25-S	25cc Hand pump tank mounted	
	PAM-40-S	45cc Hand pump inline mounted	
	PAM-TANK-5L	5 Litre tank	
	PAM-TS-45	45cc Hand pump tank mounted	
	P.L.	Hand pump level	
	CETOP VALVES		
	GO2-C2BS-D12	NG 6 Single solenoid valve DC	
	GO2-C2	NG 6 Double solenoid valve AC/DC	
	GO2-C4	NG 6 Double solenoid valve AC/DC	
	GO2-C6	NG 6 Double solenoid valve AC/DC	
	GO3-C2	NG 10 Double solenoid valve AC/DC	
	GO3-C4	NG 10 Double solenoid valve AC/DC	
GO3-C6	NG 6 Double solenoid valve AC/DC		

	Part No.	Description	Price (ZAR)
		CETOP COILS	
	COIL-2-AC	NG 6 AC coil	
	COIL-2-DC	NG 6 DC coil	
	COIL-3-AC	NG 10 AC coil	
	COIL-3-DC	NG 10 DC coil	
		NG 6 MODULAR VALVES	
	MPC-02 A	NG 6 Single pilot check	
	MPC-02 B	NG 6 Single pilot check	
	MPC-02 W	NG 6 Double pilot check	
	MRF-02 P	NG 6 Relief on P	
	MT-02 P	NG 6 Flow control on P	
	MT-02 W	NG 6 Flow control on A & B	
		NG 10 MODULAR VALVES	
	MPC-03 A	NG 10 Single pilot check	
	MPC-03 B	NG 10 Single pilot check	
	MPC-03 W	NG 10 Double pilot check	
	MRF-03 P	NG 10 Relief on P	
	MT-03 P	NG 10 Flow control on P	
	MT-03 W	NG 10 Flow control on A & B	
		BASE PLATES FOR NG 6	
	BP06/B-38	NG 6 3/8 Rear entry sub plate	
	BP06/BS-38	NG 6 3/8 PT rear AB side sub plate	
	BP06/BS/R-38	NG 6 3/8 Base & Relief 50-210	
		NG 6 MANIFOLD BLOCKS	
	BP06/2/BR-R-38	NG 6 Two station base & relief	
	BP06/3/BS-R-38	NG 6 Three station base & relief	
	BP06/4/BS-R-38	NG 6 Four station base & relief	
		BASE PLATES FOR NG 10	
	BP10/B-12	NG 10 1/2 Rear entry sub plate	
	BP10/BS-12	NG 10 1/2 PT rear AB side	
	BP10/BS/R-12	NG 10 Base & relief 80-300 bar	
		NG 10 MANIFOLD BLOCKS	
	BP10/2/BS-R-12	NG 10 Two station sub plate	
	BP10/3/BS-R-12	NG 10 Three station sub plate	
		ALUMINIUM GEAR PUMPS	
	PZIA/1.1	1.1cc Group I Pump 3/8 - 3/8	
	PZIA/1.6	1.6cc Group I Pump 3/8 - 3/8	
	PZIA/2.1	2.1cc Group I Pump 3/8 - 3/8	
	PZIA/2.6	2.6cc Group I Pump 3/8 - 3/8	
	PZIA/3.2	3.2cc Group I Pump 3/8 - 3/8	
	PZIA/3.7	3.7cc Group I Pump 3/8 - 3/8	
	PZIA/4.2	4.2cc Group I Pump 3/8 - 3/8	
	PZIA/4.8	4.8cc Group I Pump 3/8 - 3/8	
	PZIA/5.5	5.5cc Group I Pump 3/8 - 3/8	
	PZIA/6.2	6.2cc Group I Pump 3/8 - 3/8	

	Part No.	Description	Price (ZAR)	
	PZ1A/7.8	7.8cc Group 1 Pump $\frac{3}{8}$ - $\frac{3}{8}$		
	PZ1A/8.8	8.8cc Group 1 Pump $\frac{3}{8}$ - $\frac{3}{8}$		
	PZ2A/4.4	4.4cc Group 2 Pump $\frac{1}{2}$ - $\frac{1}{2}$		
	PZ2A/6.3	6.3cc Group 2 Pump $\frac{1}{2}$ - $\frac{1}{2}$		
	PZ2A/8.2	8.2cc Group 2 Pump $\frac{1}{2}$ - $\frac{1}{2}$		
	PZ2A/11.3	11.3cc Group 2 Pump $\frac{1}{2}$ - $\frac{3}{4}$		
	PZ2A/14.4	14.4cc Group 2 Pump $\frac{1}{2}$ - $\frac{3}{4}$		
	PZ2A/17.0	17.0cc Group 2 Pump $\frac{1}{2}$ - $\frac{3}{4}$		
	PZ2A/20.0	20.0cc Group 2 Pump $\frac{1}{2}$ - $\frac{3}{4}$		
	PZ2A/25.7	25.7cc Group 2 Pump 1 - $\frac{3}{4}$		
	PZ2A/31.4	31.4cc Group 2 Pump 1 - $\frac{3}{4}$		
TANK TOP FILTERS				
	MTF-12	$\frac{1}{2}$ " 10 Micron return line tank top filter		
	MTF-34	$\frac{3}{4}$ " 10 Micron return line tank top filter		
	MTF-100	1" 10 Micron return line tank top filter		
	MTF-114	$1\frac{1}{4}$ " 10 Micron return line tank top filter		
	TANK TOP ELEMENTS			
	MTFE-12	$\frac{1}{2}$ " 10 Micron tank top element		
	MTFE-34	$\frac{3}{4}$ " 10 Micron tank top element		
	MTFE-100	1" 10 Micron tank top element		
MTFE-114	$1\frac{1}{4}$ " 10 Micron tank top element			
AIR BREATHERS				
	BR- $\frac{1}{4}$	$\frac{1}{4}$ " Air breather		
	BR- $\frac{1}{2}$	$\frac{1}{2}$ " Air breather		
	BR- $\frac{3}{4}$	$\frac{3}{4}$ " Air breather		
	BR-1"	1" Air breather		
FILLER BREATHERS				
	FBA-5	Filler breather		
	FBA-25	Filler breather		
SPIN ON FILTERS				
	SO-05-10	$\frac{3}{4}$ " 10 Micron return line filter		
	SO-05-25	$\frac{3}{4}$ " 25 Micron return line filter		
	SO-10-10	$1\frac{1}{4}$ " 10 Micron return line filter		
	SO-10-25	$1\frac{1}{4}$ " 25 Micron return line filter		
SPIN ON ELEMENTS				
	SOE-05-10	$\frac{3}{4}$ " 10 Micron return line filter		
	SOE-05-25	$\frac{3}{4}$ " 25 Micron return line filter		
	SOE-10-10	$1\frac{1}{4}$ " 10 Micron return line filter		
	SOE-10-25	$1\frac{1}{4}$ " 25 Micron return line filter		

Components

	Part No.	Description	Price (ZAR)
	SUCTION STRAINERS		
	FSP-003	1/2" Suction strainer	
	FSP-005	3/4" Suction strainer	
	FSP-010	1" Suction strainer	
	FSP-015	1 1/4" Suction strainer	
	FSP-030	1 1/4" Suction strainer	
	FSP-050	2" Suction strainer	
	FLOW CONTROLS		
	STU-14	1/4" Unidirectional flow control (Barrel type)	
	STU-38	3/8" Unidirectional flow control (Barrel type)	
	STU-12	1/2" Unidirectional flow control (Barrel type)	
	STU-34	3/4" Unidirectional flow control (Barrel type)	
	STU-0400	1/4" Unidirectional flow control	
	STU-0600	3/8" Unidirectional flow control	
	STU-0800	1/2" Unidirectional flow control	
	STB-0400	1/4" Unidirectional flow control	
	STB-0600	3/8" Unidirectional flow control	
	VSQ-40	1/2" Sequence valve	
	RF 40P	1/2" Priority flow divider	
	RF 70P	3/4" Priority flow divider	
	LEVEL GAUGES		
	FLP-3	3" Level gauge	
	FLPT-3	3" Temperature level gauge	
	FLP-5	5" Level gauge	
	FLPT-5	5" Temperature level gauge	
FLPT-10	10" Temperature level gauge		
	BELL HOUSING		
	LS 201	.55-1.5 KW-80/90 GR 1 bell housing	
	LS 203	.55-1.5 KW-80/90 GR 2 bell housing	
	LS 250	2.2-4 KW-100/112 GR 1 bell housing	
	LS 253	2.2-4 KW-100/112 GR 2 bell housing	
	LS 300	5.5-9 KW-132/160 GR 2 bell housing	
LS 350	11-22 KW-160/180 GR 2 bell housing		
	DRIVE COUPLINGS		
	ND 70	.55-.75 KW-19 GR 1 drive coupling	
	ND 70A	1.1-1.5 KW-24 GR 1 drive coupling	
	ND 11	2.2-4 KW-28 GR 1 drive coupling	
	ND 10	1.1-1.5 KW-25 GR 2 drive coupling	
	ND 14	2.2-4 KW-28 GR 2 drive coupling	
	ND 16	5.5-7.5 KW-38 GR 2 drive coupling	
	ND 43A	11-15 KW-42 GR 2 drive coupling	

General Pneumatics



	Part No.	Description	Price (ZAR)
	FITTINGS		
	MALE TO TUBE STRAIGHT		
	PC-04-1/8	1/8" Male to 4mm tube	
	PC-04-1/4	1/4" Male to 4mm tube	
	PC-04-M5	M5 Thread to 4mm tube	
	PC-06-1/8	1/8" Male to 6mm tube	
	PC-06-1/4	1/4" Male to 6mm tube	
	PC-06-3/8	3/8" Male to 6mm tube	
	PC-06-M5	M5 Thread to 6mm tube	
	PC-08-1/8	1/8" Male to 8mm tube	
	PC-08-1/4	1/4" Male to 8mm tube	
	PC-08-3/8	3/8" Male to 8mm tube	
	PC-08-1/2	1/2" Male to 8mm tube	
	PC-10-1/8	1/8" Male to 10mm tube	
	PC-10-1/4	1/4" Male to 10mm tube	
	PC-10-3/8	3/8" Male to 10mm tube	
	PC-10-1/2	1/2" Male to 10mm tube	
PC-12-1/4	1/4" Male to 12mm tube		
PC-12-3/8	3/8" Male to 12mm tube		
PC-12-1/2	1/2" Male to 12mm tube		
TUBE TO TUBE STRAIGHT CONNECTOR			
	PUC-04	4mm Tube	
	PUC-06	6mm Tube	
	PUC-08	8mm Tube	
	PUC-10	10mm Tube	
	PUC-12	12mm Tube	
TUBE TO TUBE 90 DEGREE ELBOW			
	PUL-04	4mm Tube	
	PUL-06	6mm Tube	
	PUL-08	8mm Tube	
	PUL-10	10mm Tube	
	PUL-12	12mm Tube	
MALE ELBOW			
	PL-04-1/8	1/8" Male to 4mm tube	
	PL-04-1/4	1/4" Male to 4mm tube	
	PL-04-M5	M5 thread to 4mm tube	
	PL-06-1/8	1/8" Male to 6mm tube	
	PL-06-1/4	1/4" Male to 6mm tube	
	PL-06-3/8	3/8" Male to 6mm tube	
	PL-06-M5	M5 thread to 6mm tube	
	PL-08-1/8	1/8" Male to 8mm tube	
	PL-08-1/4	1/4" Male to 8mm tube	
	PL-08-3/8	3/8" Male to 8mm tube	
PL-08-1/2	1/2" Male to 8mm tube		
PL-10-1/8	1/8" Male to 10mm tube		

	Part No.	Description	Price (ZAR)
	PL-10-1/4	1/4" Male to 10mm tube	
	PL-10-3/8	3/8" Male to 10mm tube	
	PL-10-1/2	1/2" Male to 10mm tube	
	PL-12-1/4	1/4" Male to 12mm tube	
	PL-12-3/8	3/8" Male to 12mm tube	
	PL-12-1/2	1/2" Male to 12mm tube	
TUBE TO TUBE TEE PIECE			
	PUT-04	4mm Tube	
	PUT-06	6mm Tube	
	PUT-08	8mm Tube	
	PUT-10	10mm Tube	
	PUT-12	12mm Tube	
FEMALE TO TUBE STRAIGHT			
	PCF-04-1/8	1/8" Female to 4mm tube	
	PCF-04-1/4	1/4" Female to 4mm tube	
	PCF-06-1/8	1/8" Female to 6mm tube	
	PCF-06-1/4	1/4" Female to 6mm tube	
	PCF-06-3/8	3/8" Female to 6mm tube	
	PCF-08-1/8	1/8" Female to 8mm tube	
	PCF-08-1/4	1/4" Female to 8mm tube	
	PCF-08-3/8	3/8" Female to 8mm tube	
	PCF-08-1/2	1/2" Female to 8mm tube	
	PCF-10-1/8	1/8" Female to 10mm tube	
	PCF-10-1/4	1/4" Female to 10mm tube	
	PCF-10-3/8	3/8" Female to 10mm tube	
	PCF-10-1/2	1/2" Female to 10mm tube	
	PCF-12-1/4	1/4" Female to 12mm tube	
PCF-12-3/8	3/8" Female to 12mm tube		
PCF-12-1/2	1/2" Female to 12mm tube		
MALE TO TUBE TEE PIECE			
	PT-04-1/8	1/8" Male to 4mm tube	
	PT-04-1/4	1/4" Male to 4mm tube	
	PT-04-M5	M5 thread to 4mm tube	
	PT-06-1/8	1/8" Male to 6mm tube	
	PT-06-1/4	1/4" Male to 6mm tube	
	PT-06-3/8	3/8" Male to 6mm tube	
	PT-06-M5	M5 thread to 6mm tube	
	PT-08-1/8	1/8" Male to 8mm tube	
	PT-08-1/4	1/4" Male to 8mm tube	
	PT-08-3/8	3/8" Male to 8mm tube	
	PT-10-1/8	1/8" Male to 10mm tube	
	PT-10-1/4	1/4" Male to 10mm tube	
	PT-10-3/8	3/8" Male to 10mm tube	
	PT-10-1/2	1/2" Male to 10mm tube	
	PT-12-1/4	1/4" Male to 12mm tube	
	PT-12-3/8	3/8" Male to 12mm tube	
PT-12-1/2	1/2" Male to 12mm tube		

Fittings

	Part No.	Description	Price (ZAR)
	TUBE TO STEM REDUCER		
	PGJ-04-06	4-6mm Tube	
	PGJ-04-08	4-8mm Tube	
	PGJ-04-08	6-8mm Tube	
	PGJ-04-10	6-10mm Tube	
	PGJ-04-10	8-10mm Tube	
	PGJ-04-12	8-12mm Tube	
PGJ-04-12	10-12mm Tube		
	TUBE TO TUBE UNEQUAL STRAIGHT CONNECTOR		
	PG-06-04	6-4mm Tube	
	PG-08-06	8-6mm Tube	
	PG-10-08	10-8mm Tube	
PG-12-10	12-10mm Tube		
	TUBE TO TUBE Y-PIECE		
	PY-04	4mm Tube	
	PY-06	6mm Tube	
	PY-08	8mm Tube	
	PY-10	10mm Tube	
PY-12	12mm Tube		
	TUBE TO TUBE CROSS-PIECE		
	PZA-04	4mm Tube	
	PZA-06	6mm Tube	
	PZA-08	8mm Tube	
	PZA-10	10mm Tube	
PZA-12	12mm Tube		
	MALE BULKHEAD FITTINGS		
	PMM-04	4mm Tube	
	PMM-06	6mm Tube	
	PMM-08	8mm Tube	
	PMM-10	10mm Tube	
PMM-12	12mm Tube		
	FEMALE BULKHEAD FITTINGS		
	PMF04-1/8	1/8" Female to 4mm tube	
	PMF06-1/8	1/8" Female to 6mm tube	
	PMF06-1/4	1/4" Female to 6mm tube	
	PMF08-1/8	1/8" Female to 8mm tube	
	PMF08-1/4	1/4" Female to 8mm tube	
	PMF08-3/8	3/8" Female to 8mm tube	
	PMF10-1/4	1/4" Female to 10mm tube	
	PMF10-3/8	3/8" Female to 10mm tube	
	PMF12-1/4	1/4" Female to 12mm tube	
	PMF12-3/8	3/8" Female to 12mm tube	
PMF12-1/2	1/2" Female to 12mm tube		




	Part No.	Description	Price (ZAR)
	TUBE TO TUBE 90 DEGREE ELBOW		
	PLJ-04	4mm tube	
	PLJ-06	6mm tube	
	PLJ-08	8mm tube	
	PLJ-10	10mm tube	
	PLJ-12	12mm tube	
	SPEED CONTROLLER FLAT		
	SCF-04	4mm tube	
	SCF-06	6mm tube	
	SCF-08	8mm tube	
	SCF-10	10mm tube	
	SCF-12	12mm tube	
	SPEED CONTROLLER ELBOW		
	SC-1210F- 1/8"-04	4mm tube	
	SC-1210F-1/4"-04	4mm tube	
	SC-1210F-M5-04	4mm tube	
	SC-1210F- 1/8"-06	6mm tube	
	SC-2200F-1/4"-06	6mm tube	
	SC-2200F-M5-06	6mm tube	
	SC-2200F- 3/8"-06	6mm tube	
	SC-1210F- 1/8"-08	8mm tube	
	SC-2200F-1/4"-08	8mm tube	
	SC-2200F- 3/8"-08	8mm tube	
	SC-2200F-1/2"-08	8mm tube	
	SC-2200F-1/4"-10	10mm tube	
	SC-2200F- 3/8"-10	10mm tube	
	SC-2200F-1/2"-10	10mm tube	
	SC-2200F-1/4"-12	12mm tube	
	SC-2200F- 3/8"-12	12mm tube	
	SC-2200F-1/2"-12	12mm tube	
	TUBE TO MALE RUNNING TEE PIECE		
	PST-04- 1/8"	4mm tube	
	PST-04-1/4"	4mm tube	
	PST-04-M5	4mm tube	
	PST-06- 1/8"	6mm tube	
	PST-06-1/4"	6mm tube	
	PST-06- 3/8"	6mm tube	
	PST-06-M5	6mm tube	
	PST-08- 1/8"	8mm tube	
	PST-08-1/4"	8mm tube	
	PST-08- 3/8"	8mm tube	
	PST-10- 1/8"	10mm tube	
	PST-10-1/4"	10mm tube	
	PST-10- 3/8"	10mm tube	
	PST-10-1/2"	10mm tube	
	PST-12-1/4"	12mm tube	
	PST-12- 3/8"	12mm tube	
	PST-12-1/2"	12mm tube	



Fittings

	Part No.	Description	Price (ZAR)
	3/2 WAY TWIST SHUT OFF		
	EHVFF 06-06	6mm tube	
	EHVFF 08-08	8mm tube	
	EHVFF 10-10	10mm tube	
	EHVFF 12-12	12mm tube	
P U TUBING			
			
	PU-04020	4 x 2.0 tube	
	PU-04040	6 x 4.0 tube	
	PU-08055	8 x 5.5 tube	
	PU-10065	10 x 6.5 tube	
	PU-12090	12 x 9.0 tube	
ACCESSORIES			
AIRDUSTERS			
	GPI200	Air duster - metal straight	
	GPI210	Air duster - metal pistol	
	GPI216	Plastic air duster	
PU COILED HOSES			
			
	UB508060	PU 5mm x 8mm. 6mt with 1/4" Male Swivels	
	UB508090	PU 5mm x 8mm. 9mt with 1/4" Male Swivels	
	UB651060	PU 6.5mm x 10mm. 6mt with 1/4" Male Swivels	
	UB651090	PU 6.5mm x 10mm. 9mt with 1/4" Male Swivels	
	UB801275	PU 8mm x 12mm. 7.5mt with 1/4" Male Swivels	
	UB5801295	PU 8mm x 12mm. 9.5mt with 1/4" Male Swivels	
	SF5080	1/4" Male Swivels for PU 8x5	
	SF6510	1/4" Male Swivels for PU 10x6.5	
	SF0812	1/4" Male Swivels for PU 12x8	

	Part No.	Description	Price (ZAR)
	AIR PREP. EQUIPMENT		
	FILTER, REGULATOR, LUBRICATOR & GAUGE		
	SAU2000	1/4" Filter, regulator & gauge	
	SAU3000	3/8" Filter, regulator & gauge	
	SAU4000	1/2" Filter, regulator & gauge	
	SAU6000-06MG SAU6000-10MG	3/4" Filter, regulator, lubricator & gauge 1" Filter, regulator, lubricator & gauge	
	FILTER-REGULATOR, LUBRICATOR & GAUGE		
	SAU2010	1/4" Filter-Regulator, lubricator & gauge	
	SAU3010	3/8" Filter-Regulator, lubricator & gauge	
	SAU4010-04MG SAU6010-06MG	1/2" Filter-Regulator, lubricator & gauge 3/8" Filter-Regulator, lubricator & gauge	
	SAU6010-10MG	1" Filter-Regulator, lubricator & gauge	
	BRACKETS		
	B210T	1/4" Bracket	
	B310T	3/8" Bracket	
	B410T B610T	1/2" Bracket 3/4"-1" Bracket	
	AIR FILTER		
	SAF2000	1/4" Air filter	
	SAF3000	3/8" Air filter	
	SAF4000	1/2" Air filter	
	SAF6000M-06 SAF6000M-10	3/4" Air filter 1" Air Filter	
	AUTO DRAIN KIT		
	AD200	1/4" Auto drain kit	
	AD300 AD400	3/8" Auto drain kit 1/2-3/4"-1" Auto Drain	
	AUTO END OF LEG DRAIN		
SAD402-04	1/2" Auto end of leg drain		
	AIR REGULATOR WITH GAUGE		
	SAR2000	1/4" Air Regulator with gauge	
	SAR3000	3/8" Air Regulator with gauge	
	SAR4000	1/2" Air Regulator with gauge	
	SAR4000M-06BG SAR6000M-10BG	3/4" Air Regulator with gauge 1" Air Regulator with gauge	
	AIR LUBRICATOR		
	SAL2000	1/4" Air lubricator	
	SAL3000	3/8" Air lubricator	
	SAL4000	1/2" Air lubricator	
	SAL6000M-06 SAL6000M-10	3/4" Air lubricator 1" Air lubricator	

Air Prep. Equipment

	Part No.	Description	Price (ZAR)
	FILTER-REGULATOR & GAUGE		
	SAW2000	1/4" Filter-regulator & gauge	
	SAW3000	3/8" Filter-regulator & gauge	
	SAW4000	1/2" Filter-regulator & gauge	
	SAW6000M-06BG	3/4" Filter-regulator & gauge	
	SAW6000M-10BG	1" Filter-regulator & gauge	
	COALESCING FLITER		
	SAFD2000M-02B	1/4" Coalescing filter manuel drain	
	SAFD2000EL	Replacement element	
	SAFD4000M-04B	1/2" Coalescing filter manuel drain	
	SAFD4000EL	Replacement element	
	SAMD550-10B	1" Coalescing filter manuel drain	
SAM550EL	Replacement element		
	GAUGE		
	SAG50	50mm 0-10 bar 1/4" rear entry	
	SAG40	40mm 0-10 bar 1/8" rear entry	

	Part No.	Description	Price (ZAR)
NITTO TYPE COUPLINGS			
NITTO STANDARD DUTY			
	20 SH	8mm Hosetail Coupler	
	30 SH	10mm Hosetail Coupler	
	40 SH	13mm Hosetail Coupler	
	20 SF	1/4" Female Coupler	
	30 SF	3/8" Female Coupler	
	40 SF	1/2" Female Coupler	
	20 SM	1/4" Male Coupler	
	30 SM	3/8" Male Coupler	
	40 SM	1/2" Male Coupler	
	20 PH	8mm Hosetail Insert	
	30 PH	10mm Hosetail Insert	
	40 PH	13mm Hosetail Insert	
	20 PF	1/4" Female Insert	
	30 PF	3/8" Female Insert	
	40 PF	1/2" Female Insert	
	20 PM	1/4" Male Insert	
	30 PM	3/8" Male Insert	
	40 PM	1/2" Male Insert	
NITTO HEAVY DUTY			
	400 SH	1/2" Hosetail	
	600 SH	3/4" Hosetail	
	800 SH	1" Hosetail	
	400 SF	1/2" Female coupler	
	600 SF	3/4" Female coupler	
	800 SF	1" Female coupler	
	400 SM	1/2" Male coupler	
	600 SM	3/4" Male coupler	
	800 SM	1" Male coupler	
	400 PH	1/2" Hosetail insert	
	600 PH	3/4" Hosetail insert	
	800 PH	1" Hosetail insert	
	400 PF	1/2" Female insert	
	600 PF	3/4" Female insert	
	800 PF	1" Female insert	
	400 PM	1/2" Male insert	
	600 PM	3/4" Male insert	
	800 PM	1" Male insert	

Couplings

	Part No.	Description	Price (ZAR)
CEJN TYPE COUPLINGS			
	320B-2A	6mm Hosetail coupler	
	320B-2B	8mm Hosetail coupler	
	320B-2D	10mm Hosetail coupler	
	320B-2F	13mm Hosetail coupler	
	320B-3B	1/4" Female coupler	
	320B-3D	3/8" Female coupler	
	320B-3F	1/2" Female coupler	
	320B-4B	1/4" Male coupler	
	320B-4D	3/8" Male coupler	
	320B-4F	1/2" Male coupler	
	320-1A	6mm Hosetail insert	
	320-1B	8mm Hosetail insert	
	320-1D	10mm Hosetail insert	
	320-1F	13mm Hosetail insert	
	320-3B	1/4" Female insert	
	320-3D	3/8" Female insert	
	320-3F	1/2" Female insert	
	320-4A	1/8" Male insert	
	320-4B	1/4" Male insert	
	320-4D	3/8" Male insert	
	320-4F	1/2" Male insert	

	Part No.	Description	Price (ZAR)
	210-R	210 Rectus coupler	
	ARO-210	American coupler	
	ARO COUPLINGS & BRASS FITTINGS		
	ARO INSERTS STEEL		
	2608	1/4" Male insert	
	2609	1/4" Female insert	
	3946	6mm Hosetail insert	
	3947	8mm Hosetail insert	
	3948	10mm Hosetail insert	
	MALE BARB'S		
	204	1/8" Male - 6mm Hosetail	
	205	1/8" Male - 8mm Hosetail	
	206	1/8" Male - 10mm Hosetail	
	404	1/4" Male - 6mm Hosetail	
	405	1/4" Male - 8mm Hosetail	
	406	1/4" Male - 10mm Hosetail	
	408	1/4" Male - 13mm Hosetail	
	604	3/4" Male - 6mm Hosetail	
	605	3/8" Male - 8mm Hosetail	
	606	3/8" Male - 10mm Hosetail	
	608	3/8" Male - 13mm Hosetail	
	806	1/2" Male - 10mm Hosetail	
	808	1/2" Male - 13mm Hosetail	
	812	1/2" Male - 19mm Hosetail	
	1212	3/4" Male - 19mm Hosetail	
	1216	3/4" Male - 25mm Hosetail	
	FEMALE BARB'S		
	404F	1/4" Female - 6mm Hosetail	
	405F	1/4" Female - 8mm Hosetail	
606F	3/8" Female - 10mm Hosetail		
	BRASS HOSE JOINERS		
	44HJ	6mm Hose joiner	
	55HJ	8mm Hose joiner	
	8/10HJ	8mm - 10mm Hose joiner	
	66HJ	10mm Hose joiner	
	88HJ	13mm Hose joiner	

Couplings

	Part No.	Description	Price (ZAR)
	BRASS T PIECES		
	P35-1	1/4" T Piece	
	P36-1	5/16" T Piece	
	P37-1	3/8" T Piece	
	P38-1	1/2" T Piece	
	MALE PLUGS		
	P39-1	1/8" Male Plug	
	P40-1	1/4" Male Plug	
	P41-1	3/8" Male Plug	
	P42-1	1/2" Male Plug	
	BRASS PIECE FEMALE		
	P93	1/4" Female T piece	
	MALE TO MALE BUSHES		
	P10	1/8" Male to 1/8" Male	
	P11	1/4" Male to 1/8" Male	
	P12	1/4" Male to 1/4" Male	
	P13	3/8" Male to 3/8" Male	
	P13-2	3/8" Male to 1/4" Male	
	P14-3	1/2" Male to 1/2" Male	
	P14-1	1/2" Male to 1/4" Male	
	P14-2	1/2" Male to 3/8" Male	
	P14-4	1/2" Male to 3/4" Male	
	P14-5	3/4" Male to 3/4" Male	
	MALE TO FEMALE BUSHES		
	P43	1/4" Male to 1/8" Female	
	P44	3/8" Male to 1/8" Female	
	P45	3/8" Male to 1/4" Female	
	P46	1/2" Male to 1/4" Female	
	P47	1/2" Male to 3/8" Female	
	P49	3/4" Male to 1/2" Female	
	P49-2	1" Male to 3/4" Female	
	FEMALE TO MALE BUSHES		
	P6-1	1/8" Male to 1/4" Female	
	P6-10	3/8" Male to 1/2" Female	
P6-12	1/4" Male to 3/8" Female		
	FEMALE SOCKETS		
	P52	1/4" Female to 1/4" Female	
	P54	3/8" Female to 3/8" Female	
	P57	1/2" Female to 1/2" Female	

	Part No.	Description	Price (ZAR)
	POT COUPLINGS, HOSE COUPLINGS & GASKETS		
	STA-125-DP	32mm Pot coupling	
	SQC-100-DP	48mm Pot coupling	
	SQC-125-DP	54mm Pot coupling	
	SRG	Sandblast rubber gasket	
COUPLINGS			
	300H	3/8" Hosetail	
	400H	1/2" Hosetail	
	600H	3/4" Hosetail	
	800H	1" Hosetail	
	300F	3/8" Female thread	
	400F	1/2" Female thread	
	600F	3/4" Female thread	
	800F	1" Female thread	
	300M	3/8" Male thread	
	400M	1/2" Male thread	
	600M	3/4" Male thread	
	800M	1" Male thread	
	100R	Rubber Gasket Oil	
HEAVY DUTY DOUBLE BOLT CLAMPS			
	GP22	1/2" European Hose Clamp	
	GP29	5/8" European Hose Clamp	
	GP34	3/4" European Hose Clamp	
	GP40	1" European Hose Clamp	
	GP49	1 1/4" European Hose Clamp	
	GP60	1 1/2" European Hose Clamp	
	GP12	3/4" S.A. Type Clamp	
	GP16	1" S.A. Type Clamp	
	GP20	1 1/4" S.A. Type Clamp	
	GP24	1 1/2" S.A. Type Clamp	
	GP32	2" S.A. Type Clamp	

PNEUMATIC SECTION

Also available are: (Please phone for pricing)

Industrial shock absorbers

Gas Lifts

Cylinders - crimped, profiled and tie rod versions

Cylinder repairs

All cylinder mounts

Spray nozzles

Pneumatic panel coolers

Solenoid detectors

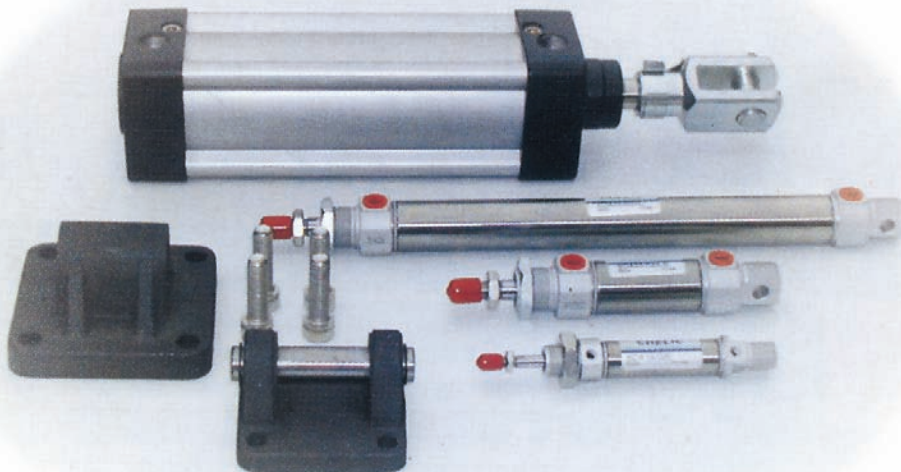
Ball valves and actuators

Push in fitting blanking plugs

Angel seat valves

P.V.T. (pressure vessel testing)

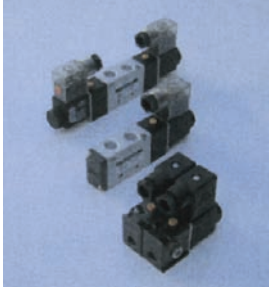
Pressure switches



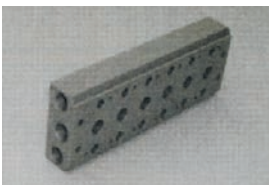
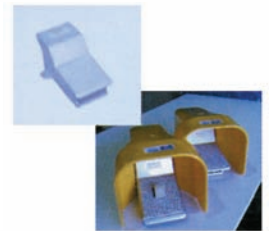
VALVES



Valves



Note: please specify voltage when ordering



Part No.	Description	Price (ZAR)
VALVES		
SOLENOID VALVES		
4V210-08	Single Solenoid 5/2 way 1/4"	
SV6102	Single Solenoid 5/2 way 1/4"	
SV6202	Double Solenoid 5/2 way 1/4"	
SV6232NO	Double Solenoid 5/3 way 1/4" centre pressurised	
SV6232NC	Double Solenoid 5/3 way 1/4" centre closed	
SV6232NF	Double Solenoid 5/3 way 1/4" centre exhausted	
SV8103	Single Solenoid 5/2 way 3/8"	
SV8203	Double Solenoid 5/2 way 3/8"	
SV8232NC	Double Solenoid 5/3 way 3/8" centres closed	
SV8232NF	Double Solenoid 5/3 way 3/8" centres exhausting	
SV9104	Single Solenoid 5/2 way 1/2"	
SV9204	Double Solenoid 5/2 way 1/2"	
SV310	Single Solenoid 3/2 way 1/8" valve (Can be assembled as manifold)	
MAC041	Seals for Manifold Assembly of SV310	
MSV-3020	Screw for SV310 Manifold Assembly	
SN8102	Namur Std Single Solenoid 5/2" way 1/4" valve	
SN8202	Namur Std Double Solenoid 5/2" way 1/4" valve	
FOOT VALVES		
SFVM250-02	Foot Pedal Valve 5/2 way 1/4" - Spring return	
SFVM250-03	Foot Pedal Valve 5/2 way 3/8" - Spring return	
4F210-08G	Foot Pedal Valve 5/2 way 1/4" - Spring return with guard	
4F210-08LG	Foot Pedal Valve 5/2 way 3/8" - Spring return lockable with guard	
COMMON SUPPLY AND EXHAUST MANIFOLD FOR 1/4" VALVE		
6VM-2F	2 Station manifold	
6VM-4F	4 Station manifold	
6VM-6F	6 Station manifold	
6VM-10F	10 Station manifold	
MSV6051	Rubber lining	
MSV6056	Blanking plate	
MSV6057	Mounting screw	
COILS AND DIN PLUGS		
EH602-9-(voltage)	Available in 12VDC 24VDC 110VAC 220VDC for SNVS SV and 4V type valves	
EHS-01	Standard DIN plug for SV and VS type valves	
EHS-02-(voltage)	LED DIN plug for SV and VS type valves	
Voltages available: 12VDC, 24VAC, 24VDC, 110VAC, 220VAC.		
Note: please specify voltage when ordering		



	Part No.	Description	Price (ZAR)
	AIR PILOTED VALVES		
	PV6101	Single air piloted $\frac{5}{2}$ way $\frac{1}{8}$ " line mounted valve	
	PV6201	Double air piloted $\frac{5}{2}$ way $\frac{1}{8}$ " line mounted valve	
	PV6102	Single air piloted $\frac{5}{2}$ way $\frac{1}{4}$ " line mounted valve	
	PV6202	Double air piloted $\frac{5}{2}$ way $\frac{1}{4}$ " line mounted valve	
	PV8103	Single air piloted $\frac{5}{2}$ way $\frac{3}{8}$ " line mounted valve	
	PV8203	Double air piloted $\frac{5}{2}$ way $\frac{3}{8}$ " line mounted valve	
	PV8232NC	Double air piloted $\frac{5}{3}$ way centres closed $\frac{3}{8}$ " line mounted valve	
PV8232NF	Double air piloted $\frac{5}{3}$ way centres exhausting line mounted valve		
MECHANICAL VALVES			
  	MV25-S06R	Flush push button valve $\frac{5}{2}$ way $\frac{1}{4}$ " RED	
	MV25-S08R	Mushroom push button valve $\frac{5}{2}$ way $\frac{1}{4}$ " RED	
	MV25-S10R	Twist select button valve $\frac{5}{2}$ way $\frac{1}{4}$ " RED	
	MV25-S11	Key selector valve $\frac{5}{2}$ way $\frac{1}{4}$ "	
	MV15-S02	Roller lever valve $\frac{3}{2}$ way $\frac{1}{8}$ "	
	MV15-S04	Toggle lever valve $\frac{3}{2}$ way $\frac{1}{8}$ "	
	MV15-S05	Thumb lever valve $\frac{3}{2}$ way $\frac{1}{8}$ "	
	MV15-S06R	Flush push button valve $\frac{3}{2}$ way $\frac{1}{8}$ " RED	
	MV15-S08R	Mushroom push button valve $\frac{3}{2}$ way $\frac{1}{8}$ " RED	
	MV15-S09R	Emergency stop button valve $\frac{3}{2}$ way $\frac{1}{8}$ " RED	
	MV15-S10R	Twist select button valve $\frac{3}{2}$ way $\frac{1}{8}$ " RED	
	MVI00-3V	Panel mountable lever switch $\frac{3}{2}$ way M5	
	MVI00-3P	Panel mountable push button $\frac{3}{2}$ way M5	
	HAND LEVER VALVES		
 	HVL-602	Hand lever valve $\frac{5}{2}$ way $\frac{1}{4}$ " - Detented	
	VH5NR-02	Hand lever valve $\frac{5}{2}$ way $\frac{1}{4}$ " - Spring return	
	HVL-632	Hand lever valve $\frac{5}{2}$ way $\frac{1}{4}$ " - Detented	
	SHV200-02	Rotary hand lever valve $\frac{5}{3}$ way $\frac{1}{4}$ " Closed centre - detented	
	SHV300-04	Rotary hand lever valve $\frac{5}{3}$ way $\frac{1}{2}$ " Closed centre - detented	

Valves

	Part No.	Description	Price (ZAR)
	ACCESSORIES		
	IN LINE SPEED CONTROLLERS		
	ASCI50-01N	In line speed controller 1/8" - Panel Mountable	
	BSC300-02N	In line speed controller 1/4" - Panel Mountable	
	BSCI50-03N	In line speed controller 3/8" - Panel Mountable	
CSC400-04N	In line speed controller 1/2" - Body Mounted		
VACUUM GENERATORS			
	VMT05-04	Vacuum Generator (0.5mm Orifice - 11.5 ANR L/PM)	
	VMT10-06	Vacuum Generator (1mm Orifice - 45 ANR L/PM)	
	EVI0	1mm Vacuum generator std	
	EVI0S	1.0mm Vacuum generator switch type	
	EVI5	1.5mm Vacuum generator std	
	EVI5S	1.5mm Vacuum generator switch type	
EXHAUST RESTRICTIONS			
	BESL-01	Brass exhaust restrictor - lockable 1/8"	
	BESL-02	Brass exhaust restrictor - lockable 1/4"	
	BESL-03	Brass exhaust restrictor - lockable 3/8"	
	BESL-04	Brass exhaust restrictor - lockable 1/2"	
	BESL-08	Brass exhaust restrictor - lockable 1"	
EXHAUST SILENCERS			
	SAB-06- 1/8	Brass exhaust silencers - cone shaped 1/8"	
	SAB-08-1/4	Brass exhaust silencers - cone shaped 1/4"	
	SAB-10- 3/8	Brass exhaust silencers - cone shaped 3/8"	
	SAB-12-1/2	Brass exhaust silencers - cone shaped 1/2"	
	SAB-14-1	Brass exhaust silencers - cone shaped 1"	
BRASS VENTS			
	SBV-06- 1/8	1/8" Brass vent	
	SBV-06-1/4	1/4" Brass vent	
	SBV-06- 3/8	3/8" Brass vent	
	SBV-06-1/2	1/2" Brass vent	

	Part No.	Description	Price (ZAR)
		REGULATOR MUFFLER	
	RM10	1/8" Regulator muffler	
	RM20	1/4" Regulator muffler	
SLIDING SHUT OFF VALVE (3/2 WAY)			
	MAV-01B	Exhausting slide shut off valve 1/8" male outlet - female inlet	
	MBV-02B	Exhausting slide shut off valve 1/4" male outlet - female inlet	
	MBV-03B	Exhausting slide shut off valve 3/8" male outlet - female inlet	
	MCV-04B	Exhausting slide shut off valve 1/2" male outlet - female inlet	
QUICK EXHAUST VALVES			
	QEV 1/8	Quick exhaust valve 1/8"	
	QEV 1/4	Quick exhaust valve 1/4"	
	QEV 3/8	Quick exhaust valve 3/8"	
	QEV 1/2	Quick exhaust valve 1/2"	
	QEV 3/4	Quick exhaust valve 3/4"	
	QEVI	Quick exhaust valve 1"	
PNEUMATIC VIBRATORS			
	VK-8	At 6 bar: Weight 120g, Centrifugal force 370N	
	VK-10	At 6 bar: Weight 130g, Centrifugal force 400N	
	VK-13	At 6 bar: Weight 250g, Centrifugal force 850N	
	VK-16	At 6 bar: Weight 280g, Centrifugal force 1090N	
	VK-20	At 6 bar: Weight 500g, Centrifugal force 1700N	
	VK-25	At 6 bar: Weight 600g, Centrifugal force 2420N	
	VK-30	At 6 bar: Weight 1100g, Centrifugal force 3210N	
	VK-36	At 6 bar: Weight 1300g, Centrifugal force 4400N	
LOGIC VALVES			
	AST-01	1/8" and-gate	
	ADT-01	1/8" or-gate	

Valves

	Part No.	Description	Price (ZAR)
	CHECK VALVES		
	ACV-01	1/8" Non-return valve	
	ACV-02	1/4" Non-return valve	
	ACV-03	3/8" Non-return valve	
	ACV-04	1/2" Non-return valve	
ELECTRONIC TIMED DRAIN VALVES			
	ET-22	Electronic timer on time - 045sec off time 0.5 - 45min	
	Voltages: 24VIAC, 24VIDC, 110VAC, 220VAC. Please specify voltage when ordering		

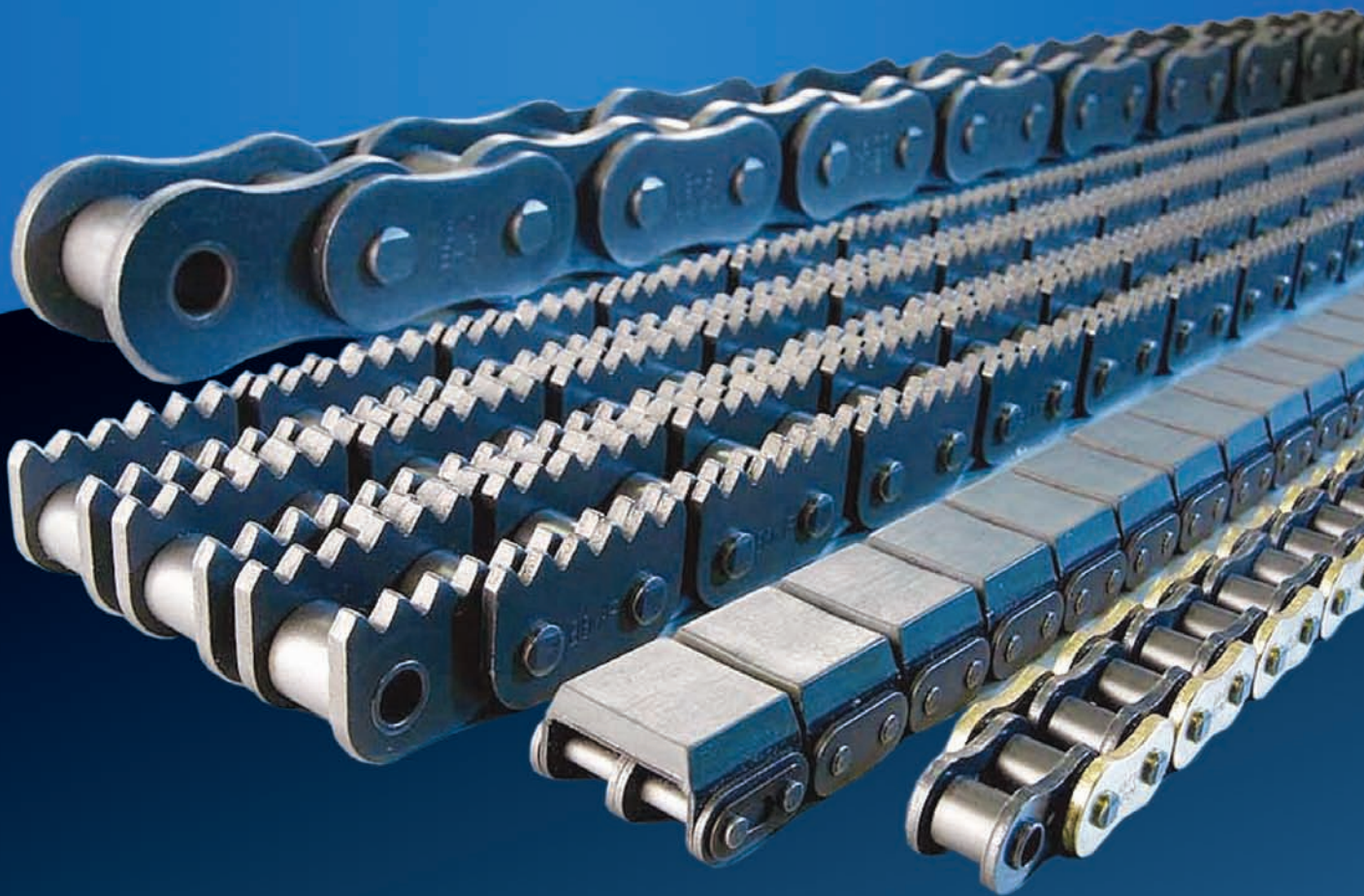
Part No.	Description	Price (ZAR)	
INDUSTRIAL HOSES			
PLIOVIC MULTIPURPOSE HOSE 1700KPA 250PSI			
MM	SIZE	LENGTH	
6	1/4"	228.6m	
8	5/16"	228.6m	
10	3/8"	228.6m	
13	1/2"	228.6m	
<i>Available in Black, Red and Blue</i>			
ODYSSEY PVC NITRILE RUBBER MIX			
Suitable for use up to 50°C			
MM	SIZE	LENGTH	PRESSURE RATINGS
6	1/4"	100m	300PSI
8	5/16"	100m	300PSI
10	3/8"	100m	300PSI
13	1/2"	100m	300PSI
16	5/8"	100m	300PSI
19	3/5"	100m	300PSI
25	1"	100m	300PSI
32	1 1/4"	50m	150PSI
40	1 1/2"	50m	150PSI
50	2"	50m	150PSI
<i>Available in Black</i>			
ACALA/INSTAGRIP 250 PUSHLOK HOSE,			
non conductive 1700KPA 250PSI			
MM	SIZE	LENGTH	
6.4	1/4"	152.4m	
9.5	3/8"	152.4m	
12.7	1/2"	152.4m	
15.9	5/8"	152.4m	
19.4	3/4"	152.4m	
<i>Available in Black and grey</i>			
HORIZON MULTIPURPOSE HOSE 1400KPA 200PSI			
MM	SIZE	LENGTH	
6	1/4"	152.4m	
8	5/16"	152.4m	
10	3/8"	152.4m	
13	1/2"	152.4m	
16	5/8"	152.4m	
19	3/4"	152.4m	
25	1"	137.2m	
<i>Available in Black</i>			



Industrial Hoses

	Part No.	Description		Price (ZAR)
	WINGFOOT HOSE, oil resistant, non conductive			
	MM	SIZE	COLOUR	LENGTH
	8.0	5/16"	Black	152.4m
	12.7	1/2"	Red	152.4m
	19.0	3/4"	Red	152.4m
	25.0	1"	Red	137.2m
	32.0	1 1/4"	Red	122m
	38.0	1 1/2"	Red	91.4m
	GORILLA non conductive, flame resistant cover 3400KPA 500PSI			
	MM	SIZE	LENGTH	
	12.7	1/2"	152.4m	
	19.1	3/4"	152.4m	
	25.4	1"	152.4m	
	<i>Available in Yellow</i>			

Chains and Components



Chain Components

Connecting Link Spring Lock Type

Available in 05B - 16B models.

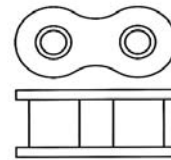
Two pins and one link plate are furnished assembled. The standard coverplate is designed for a slip-fit on the pins. It is held in place by a flat spring-steel lock, split at one end to permit installation in grooves at the end of each pin.



Roller Link

Available in most chain models.

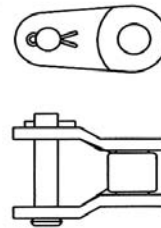
Standard for all sizes of roller chains. They are furnished as complete roller link assemblies. The two bushings are press-fit in each of the link plates. The same roller links are used for single and multiple strand chains.



Single-Pitch Offset Link Slip-Fit Type

Available in simplex, duplex and triplex models

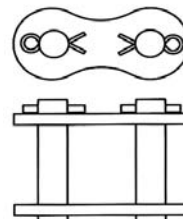
This link is furnished with slip fit pin unassembled in the offset link plates. The flat milled on one end of the pin prevents it from turning in the link plate.



Connecting Link Cotter Pin Type

Available in 20B - 32B models.

The two pins and one link plate are furnished assembled. The coverplate is slip-fit on the pins. Press-fit connecting links are available upon special request.



Chain Performance

You could look at two different brands of roller chains and probably not see a difference on the surface. However, where you will see a difference is in their performance. The working load of a roller chain is often its most important characteristic. Contrary to popular belief, there is no consistent relationship between a roller chain's working load capacity and its ultimate tensile strength. Many times chains are selected on their published tensile strengths, which are breaking loads.

Chains must be selected based upon loads that they can transmit repeatedly over millions of cycles. So, chains with equal tensile strengths can, and commonly do, have very different working load capacities. In fact, chains with higher published tensile strength than Diamond could easily have much lower working load capacities.

Why use Roller Chain?

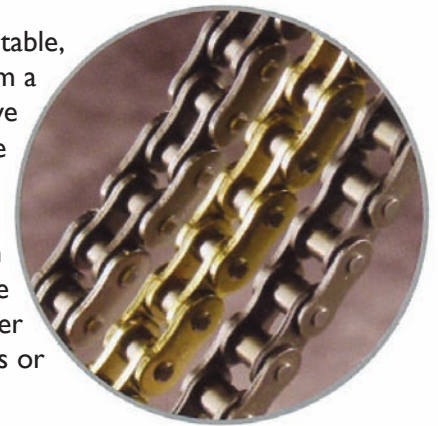
DURABILITY - Roller chain drives long service life because the chain load is distributed over several sprocket teeth, keeping bearing pressures relatively low for the power transmitted.

RUGGEDNESS - The proportions, parts heat treatment and press-fit construction of roller chains help them with stand shock loads and rough drive conditions.

EFFICIENCY - Roller chains transmit power with high efficiency throughout the entire life of the drive. There are no large separating forces, radial loads, thrusts, or bearing pressures to waste power. Therefore, machine frames and bearings may be smaller, lighter and less costly.

VERSATILITY - Drive center distances may be long or short, fixed or adjustable, to suit machine design. Roller chain can transmit power to several shafts from a single drive shaft. Roller chains can engage sprockets on either side and drive sprockets in either direction. Roller chains operate efficiently over a wide speed range in minimum space.

CONVENIENCE - Chain installation requires only the alignment that can be readily obtained with commonly available hand tools. Roller chains can be easily connected and disconnected with standard connecting links. Roller chains can be replaced or maintained without disturbing the sprockets, shafts or bearings.



A chain is only worth its weakest link

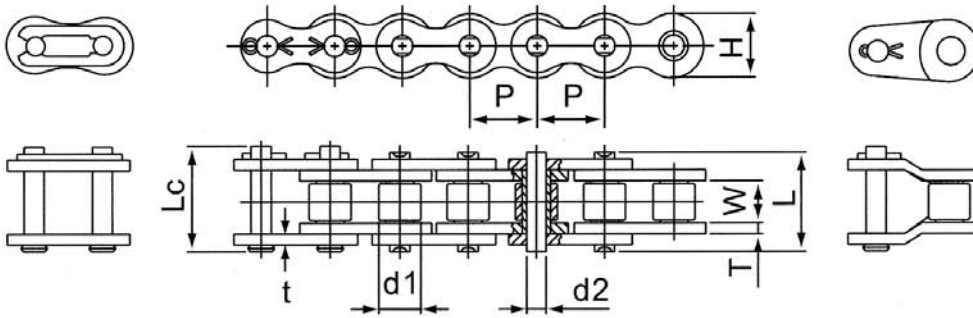
Let's face it, there are less expensive chains out there, but are they worth it? Probably not in the long run. In most cases, cheap chains doesn't last as long so you have to replace it more often. That means downtime and all of the costs associated with it: idle workers, lost production, repair/replacement costs - it all adds up. Don't be fooled. Initial costs aren't necessarily real costs. Here's an example work sheet that will help you understand the real costs associated with less expensive chains. Please take time with your Diamond Chain distributor to complete the example using chains and costs that reflect your specific drive conditions. It will clearly illustrate that the investment in Diamond roller chain is definantly worth it to the long-term repair and replacement costs of a less expensive chain.

ANNUAL CHAIN COST ANALYSIS

	Bargain Chain	DIAMOND Chain
A. Unit cost of new chain (R/chain-Ft):		
B. Length required for application (chain-Ft):		
C. Chain cost per application, A x B (R/chain):		
D. Chains used per year (chains/Yr):		
E. Annual cost of chains, C x D (R/Yr):		
F. Chain repairs per year (repairs/Yr):		
G. Average hours of downtime per repair (downtime-Hrs/repair):		
H. Costs per downtime-hour, including cost repair labour, lost efficiency, lost profits, etc. (R/downtime-Hr):		
I. Annual downtime costs, F x G x H (R/Yr):		
J. Total annual costs incurred, E + I (R/Yr):		

British Standard Simplex Roller Chain

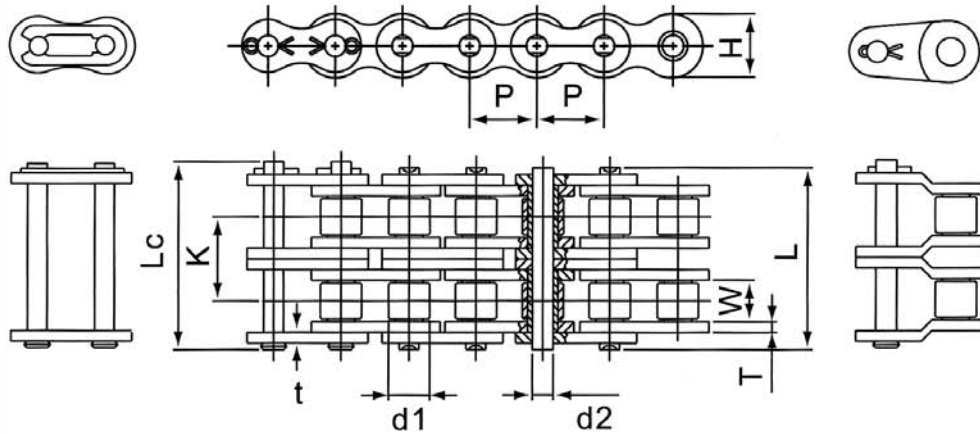
Single Strand Roller chain



Diamond Number	Pitch P mm	Roller		Pin Outer Diameter d2 max mm	Pin Length		Link Plate Height H max mm	Link Plate Thickness T/t mm	Average Tensile Strength N
		W min mm	d1 max mm		L max mm	Lc max mm			
05B-1	8.00	3.00	5.00	2.31	8.6	11.7	7.1	0.9	5884
06B-1	9.53	5.72	6.35	3.28	13.5	16.8	8.2	1.4 / 1.1	10787
08B-1	12.70	7.75	8.51	4.45	17.0	20.7	11.8	1.5	19123
10B-1	15.88	9.65	10.16	5.08	19.6	23.7	14.7	1.7	27459
12B-1	19.05	11.68	12.07	5.72	22.7	27.3	16.1	1.8	32852
16B-1	25.40	17.02	15.88	8.28	36.1	41.5	21.0	4.0 / 3.2	73550
20B-1	31.75	19.56	19.05	10.19	43.2	49.3	26.4	4.7	106402
24B-1	38.10	25.40	25.40	14.63	53.4	60.0	33.4	6.3	178481
28B-1	44.45	30.99	27.94	15.90	65.1	72.5	37.0	7.8	225553
32B-1	50.80	30.99	29.21	17.81	67.4	75.3	42.2	7.3	279490

British Standard Duplex Roller Chain

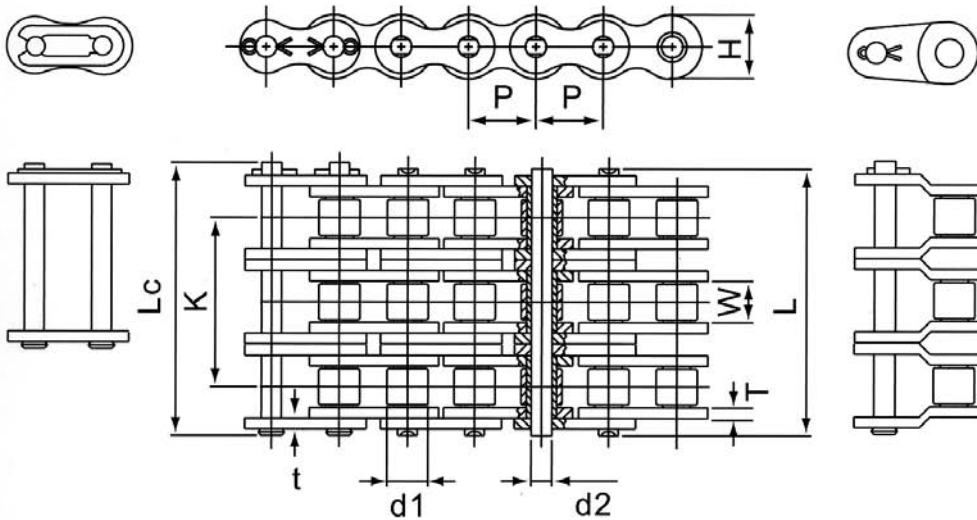
Double Strand Roller chain



Diamond Number	Pitch P mm	Roller		Pin Outer Diameter		Pin Length		K mm	Link Plate Height H max mm	Link Plate Thickness T/t mm	Average Tensile Strength N
		W min mm	d1 max mm	d2 max mm	L max mm	Lc max mm					
06B-2	9.53	5.72	6.35	3.28	23.8	27.1	10.24	8.2	1.4 / 1.1	18633	
08B-2	12.70	7.75	8.51	4.45	31.0	34.9	13.92	11.8	1.5	37756	
10B-2	15.88	9.65	10.16	5.08	36.2	40.3	16.59	14.7	1.7	54917	
12B-2	19.05	11.68	12.07	5.72	42.2	46.8	19.46	16.1	1.8	63743	
16B-2	25.40	17.02	15.88	8.28	68.0	73.4	31.88	21.0	4.0 / 3.2	147100	
20B-2	31.75	19.56	19.05	10.19	79.0	85.1	36.45	26.4	4.7	212804	
24B-2	38.10	25.40	25.40	14.63	101.0	107.6	48.36	33.4	6.3	356962	
28B-2	44.45	30.99	27.94	15.90	124.0	131.4	59.56	37.0	7.8	451106	
32B-2	50.80	30.99	29.21	17.81	126.0	133.9	58.55	42.2	7.3	558979	

British Standard Triplex Roller Chain

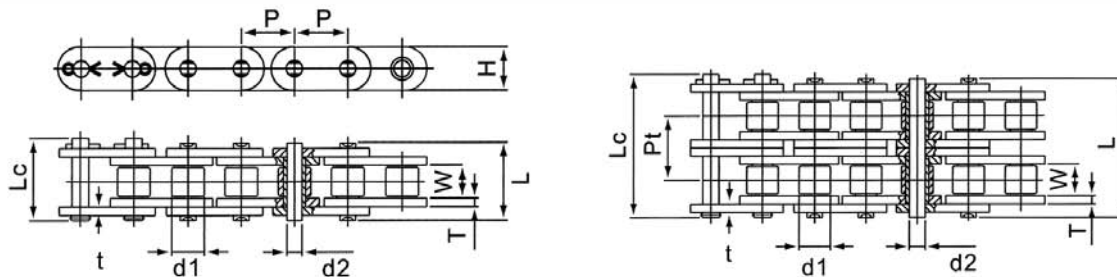
Triple Strand Roller chain



Diamond Number	Pitch P mm	Roller		Pin Outer Diameter		Pin Length		K mm	Link Plate Height H max mm	Link Plate Thickness T/t mm	Minimum Tensile Strength N
		W min mm	d1 max mm	d2 max mm	L max mm	Lc max mm					
06B-3	9.53	5.72	6.35	3.28	34.1	35.1	20.48	8.2	1.4 / 1.1	25007	
08B-3	12.70	7.75	8.51	4.45	44.9	46.3	27.84	11.8	1.5	45111	
10B-3	15.88	9.65	10.16	5.08	54.0	55.4	33.18	14.7	1.7	67666	
12B-3	19.05	11.68	12.07	5.72	62.1	64.4	38.92	16.1	1.8	88260	
16B-3	25.40	17.02	15.88	8.28	99.5	102.7	63.76	21.1	4.0 / 3.0	166713	
20B-3	31.75	19.56	19.05	10.19	113.7	116.7	72.90	26.4	4.5 / 3.5	254973	
24B-3	38.10	25.40	25.40	14.63	150.1	153.0	96.72	33.4	6.0 / 5.0	431493	
28B-3	44.45	30.99	27.94	15.90	184.3	188.9	119.12	37.0	7.4 / 6.4	534462	
32B-3	50.80	30.99	29.21	17.81	181.8	186.4	117.10	42.2	7.0 / 6.0	686466	

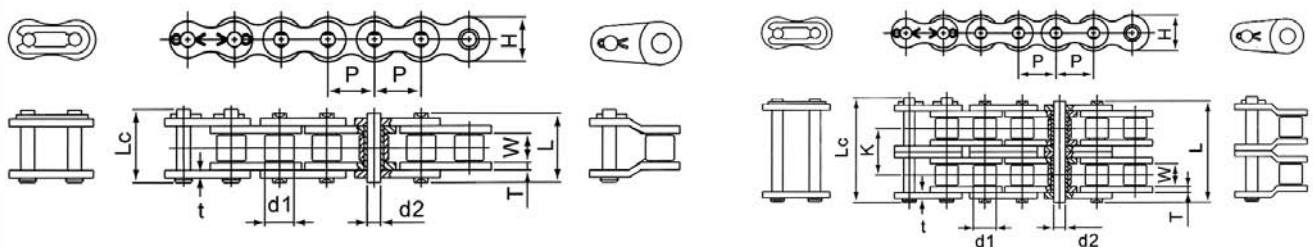
British Standard Roller Chain

Oval Contour Side Plate Chain - European Series



Diamond Number	Pitch P mm	Roller			Pin Length		K mm	Link Plate Height H max mm	Link Plate Thickness T/t mm	Average Tensile Strength N
		W min mm	d1 max mm	d2 max mm	L max mm	Lc max mm				
08BOC	12.70	7.75	8.51	4.45	17.0	20.7	-	11.8	1.5	19123
08BOC-2	12.70	7.75	8.51	4.45	31.0	34.9	13.92	11.8	1.5	37756
10BOC	15.88	9.65	10.16	5.08	19.6	23.7	-	14.7	1.7	27459
10BOC-2	15.88	9.65	10.16	5.08	36.2	40.3	16.59	14.7	1.7	54917
12BOC	19.05	11.68	12.07	5.72	22.7	27.3	-	16.1	1.8	31872
16BOC	25.40	17.02	15.88	8.28	36.1	41.5	-	21.0	4.0 / 3.2	73550

Stainless Steel Chain - 300 Series



Diamond Number	Pitch P mm	Roller			Pin Length		K mm	Link Plate Height H max mm	Link Plate Thickness T/t mm	Average Tensile Strength N
		W min mm	d1 max mm	d2 max mm	L max mm	Lc max mm				
06BSS	9.53	5.72	6.35	3.28	13.5	16.8	-	8.2	1.4 / 1.1	7453
08BSS	12.70	7.75	8.51	4.45	17.0	20.7	-	11.8	1.5	14710
10BSS	15.88	9.65	10.16	5.08	19.6	23.7	-	14.7	1.7	19613
10BSS-2	15.88	9.65	10.16	5.08	36.2	40.3	16.59	14.7	1.7	38245
12BSS	19.05	11.68	12.07	5.72	22.7	27.3	-	16.1	1.8	24517
16BSS	25.40	17.02	15.88	8.28	36.1	41.5	-	21.0	4.0 / 3.2	52956

Other Available Products

Along with the British Standard chains featured in this publication, Diamond Chain Company offers a full line of U.S. manufactured ASME/ANSI roller chains. This product offering includes:

ASME/ANSI Standard & Heavy Series Roller Chains

Though these are referred to as “standard chains”, they are anything but. Diamond’s standard and heavy series roller chains, built to ASME/ANSI B29.1 standards, are manufactured to very specific requirements. The only thing standard about our chains are their ability to fit many standard applications. From industry to agriculture, our Standard and Heavy Series chains are designed to last longer than any other manufacturer’s roller chain.

ASME/ANSI High Strength (HS) Drive Chain

HS Series Drive chains are built in accordance with ASME/ANSI B29.1 standards and are dimensionally identical to Heavy Series Drive chains, but are specially designed and incorporate pins produced from medium carbon alloy steel. These pins are through-hardened to give the chain a higher working load capacity and additional resistance to fatigue in high load and pulsating type applications. Users of these chains should remember that wear life may be slightly reduced due to the material and heat treatment of the chain pins. Slip-fit type connecting links and offset links are not available for these chains.

ASME/ANSI Oilfield Chain

Roller chains used in the oil and gas industries are subjected to some of the greatest loads and harshest environments. These conditions are far more severe than usually found in industrial applications. These “Oilfield” chains can be either single strand or multiple strand and are typically constructed using Heavy Series components. We produce our Oilfield chains with the same attention to detail that goes into all our products, but additionally these models are subjected to the most up to date API (American Petroleum Institute) Specification 7F performance testing. For more information, please reference our Oilfield Roller Chain Brochure or the Diamond Product Guide 1004.



ASME/ANSI Corrosion/Moisture Resistant Roller Chain

Diamond Chain produces a full line of corrosion/moisture resistant chains for a variety of uses in environments where the chains are exposed to moisture or corrosive materials. Standard attachments are available with quick delivery.

Diamond Nickel-Plated Chain is different from many rust-resistant chains because Diamond electroless nickel plates all of the components are plated, which prevents internal rust from seeping out and causing contamination. Common uses for Nickel-Plated chains include roller chain applications exposed to the weather, high humidity or those on machines that are frequently washed down with water:

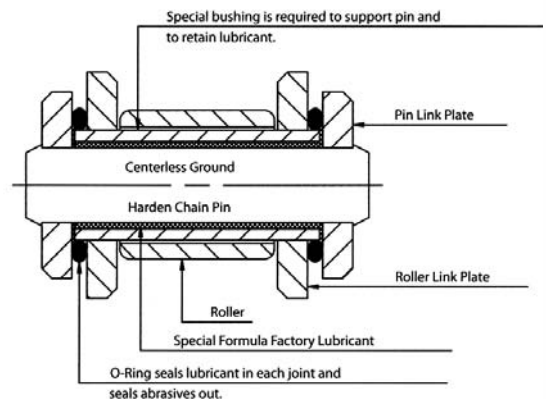
Diamond produces a wide range of Single-Pitch Drive and Double Pitch Conveyor chains manufactured in four combinations of stainless steel depending upon the specific application. *AP Stainless Chain* is assembled using 300 Series (austenitic stainless) link plates, bushings and rollers along with a precipitation-hardened stainless steel pin. This combination increases the wear life of this chain over those constructed entirely of 300 Series components. AP Stainless chains are well suited for food processing and are approved by the U.S. Food and Drug Administration. AP Stainless will be supplied unless otherwise specified. To learn more about the various resistance levels of these chains against certain substances, please consult the Diamond Corrosion/Moisture Resistant Chain Brochure or the Diamond Product Guide 1004.

ASME/ANSI Special Lubricated Chains

When the environment or location of your roller chain drive is such that regular lubrication is not possible or practical, consider Diamond Chain's Special Lubricated chains. Diamond offers three types of chain designed specifically to deliver the highest level of performance - even in applications that can't or don't receive proper lubrication.

- *Duralube*® Chain - For applications where regular lubrication is a challenge, DURALUBE can offer a longer lasting solution. This chain is constructed using a one-piece powdered metal bushing/roller combination which has lubricant drawn in under vacuum. In service, this lubricant is released and provides supplemental lubrication to the pin/bushing joint between regularly scheduled maintenance. Generally, the wear life of DURALUBE chain can be five times that of standard (initially lubricated only) chain.
- *O-Ring Chain*® - Diamond's RING LEADER O-ring chain is specifically designed for applications that don't permit regular lubrication, requiring the chain to depend entirely upon initial factory lubrication throughout its service life. Depending upon the specific conditions, RING LEADER can provide up to ten times the wear life of a standard chains.

Industries such as agriculture, food processing, packaging, printing, textile and chemical processing can introduce contaminants that damage a standard chain. Dirt, mud, food particles, paper fines, dust and moisture can cause buildup on the chain and clog the openings on a standard roller chain where lubrications enters the pin/bushing area. These contaminants can even get inside the chain, actually damaging the surface of pins and bushings. Because the RING LEADER chain lasts up to ten times longer than a regular chain, overall economy of operation is improved. With lubrication already sealed into the chain, maintenance expense is lowered. RING LEADER O-ring chain experiences less wear elongation during normal operation, thus providing a longer service life. Life cycle costs of a RING LEADER chain can be dramatically less than for a standard chain in certain applications which translates into a longer lasting roller chain and a real cost saving.



- *Dust Stopper Chain* - For applications which require the combination benefits of DURALUBE design construction and RING LEADER style O-rings and a specially formulated lubricant. DUST STOPPER offers the utmost in specialized protection. Dust stopper chains seal dust, dirt and debris out and seals lubrication in. Very minimal, if any secondary lubrication is required with this chain thereby improving wear resistance and toughness.

ASME/ANSI Attachment Chain

Single-Pitch and Double-Pitch chains are available assembled with either attachment link plates or extended pins. Diamond's standard attachment hole sizes are designed to accommodate most common screw sizes. If your application requires a unique hole size, please contact Diamond as many alternate lug holes are available as special order items and some may be available from stock. Contact Diamond application engineers if you have any questions when designing or specifying attachment chains. Please reference the Diamond Product Guide 1004 for additional details. *Attachment chains available in ANSI models only.*

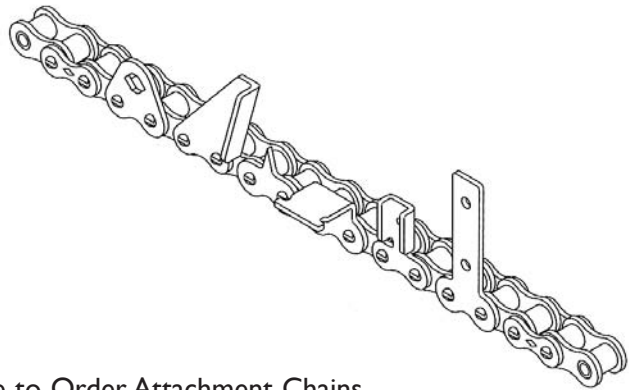
ASME/ANSI Double-Pitch Roller Chain

- *Double Pitch Power Transmission Roller Chain* - These chains, produced to ASME/ANSI B29.3 standards, have figure-eight stule link plates. Their dimensions are similar to Standard Series chains with the exception of the pitch, which is twice that of the Standard Series chains. The increase in pitch means that only half the number of component parts are required per foot which can significantly lower the cost. Typical uses for these types of chains include light load drives commonly found in agricultural machinery.
- *Double Pitch Conveyor Roller Chain* - Produced to ASME/ANSI B29.4 standards, these chains are used in conveyor applications when loads are low and speeds are moderate. They are similar to the Double-Pitch Power Transmission chains, but with link plates that have an oval contour, and can be produced with either standard or over-sized rollers. They are most often found working on conveyors of all shapes and sizes and can be supplied with one or more of our many attachments to carry or convvay products.

ASME/ANSI / Made-to-Order Roller Chains

Can't find a standard series cahin or standard attachment to fit your application needs? Give us a call. Our application engineers stand ready to assist you in designing or selecting the Diamond chain to best suit your application. Some but not all of the special application chanis available include:

- Pin Oven Chains
- RING LEADER[®] O-ring Attachment Chains
- Bindery Chains
- Plastic Film Feeder Chains
- Serrated Top Chains
- POWER CURVE[®] Chains
- TUF-FLEX[®] Chains
- Straight Running and Side-Flexing Roller Chains
- Coupling Chains
- Micropitch[®] Chains
- Powersports Chains
- plus many custom-designed attachments for Made-to-Order Attachment Chains



Chain Tools

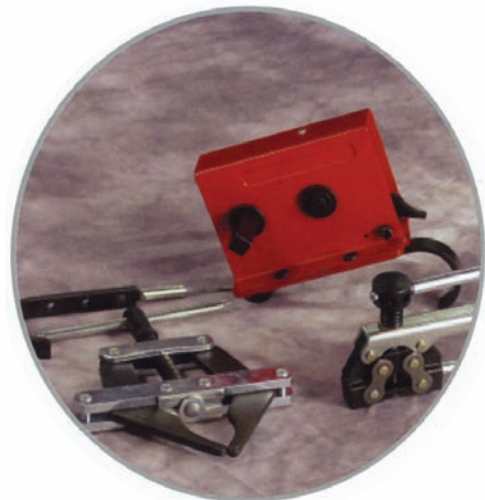
Roller chain connecting tools and pin extractor tools come in a variety of sizes to fit your application and help make chain repair or replacement safe and easy.

Pin Extractor Tools come in 3 varieties:

- small - PEI13 for chain models 25/05B - 60H/12B;
- large - PEI35 for chain models 80/16B - 100H/20B; and
- extra large - PERE157 for chain models 120/24B - 160/32B

Chain Connecting Tools come in 3 varieties as well:

- small - CT35 for chain models 35/06B - 60H/12B;
- large CT80 for chain models 80/16B - 160/32B; and
- large cable style - CT80-CABLE for chain models 80/16B and larger.



Power Transmissions



Chain Drives

- Roller Chains
- Roller Chain Attachments
- Double Pitch Chains
- Leaf Chains
- Timber Chains
- Agricultural Chain Attachments
- Conveyor Chains
- Conveyor Chain Attachments



Sprockets

- Taper Bore Sprockets
- Pilot Bore Sprockets
- Plate Wheels
- Double Simplex Sprockets
- Idler Sprockets
- Welded Hubs and Sprockets



Belts

- Challenge V and Wedge Belts
- Classical V-Belts
- Classical CRE V-Belts
- Wedge Belts
- Classical Timing Belts
- Curved Tooth Timing Belts



Pulleys

V-Pulleys

- SPZ
- SPA
- SPB
- SPC
- Variable Speed Pulleys
- Mi-Lock

Synchronous Pulleys

- Timing Taper Bore
- HTD ® Taper Bore
- Metric Timing Pilot Bore
- Timing Pilot Bore
- HTD ® Pilot Bore



Electric Motors

General Information

CHALLENGE series three phase asynchronous AC electric motors, Are totally enclosed fan cooled (**IC-411**) squirrel caged type, With **IP55** enclosure protection, Class F insulation and **S1** continuous Duty/Rating.

The motors are manufactured from high grade die cast aluminium alloy and come with multi-mount detachable feet as standard, which allows for various mounting positions to be achieved.

The temperature ratings are -15°C to $+40^{\circ}\text{C}$ to a maximum altitude of 1000 metres above sea level.

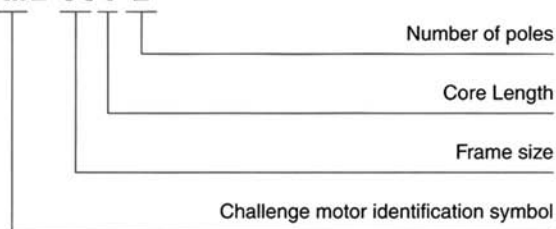
CHALLENGE motors have voltage ratings of 380v / 400v / 415v.

Also they have a rated frequency of 50Hz and 60Hz. Connection is **STAR** up to and including 3kW and from 4kW and above the connection is **DELTA**, allowing for **STAR/DELTA** starting.

Designation

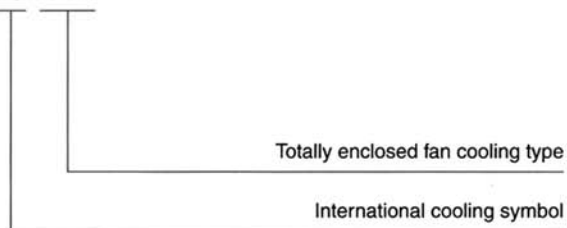
Motor Identification Symbol

CML-801-2



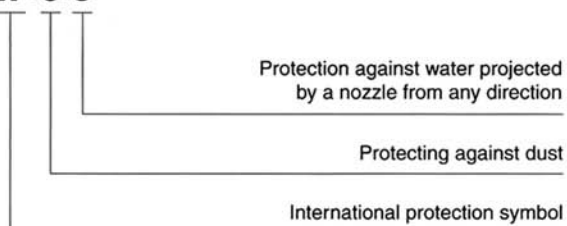
Cooling Method

IC-411



Protection Class

IP-5-5



Standards and Regulations




CE Marking

Our three phase induction motors comply with the requirements of the following international standard:

IEC 60034

as well as with the Low Voltage Directive 73/23 (1973), modified by the Directive 93/68 (1993) and the EMC-Directive 89/336.

The above named products comply with the requirements of the EC Directive Machines 89/392. In accordance with this Directive induction motors are components intended solely for integration into other machines. Commissioning is forbidden until conformity of the end product with this Directive is proved!

The  symbol was applied for the first time in 1995.



CEMEP Voluntary Agreement

Motors covered by this agreement are defined as totally enclosed fan cooled (normally IP 54 or IP 55), three phase AC squirrel cage induction motors 1.1 kW to 90 kW, with 2 or 4 poles, rated for 400 V-line, 50 Hz, duty class S1. (Standard design can be interpreted as design N according to EN 60034-12 and HD 231). They are divided in three classes of efficiency levels, defined by two values of full load efficiency per output, designated eff1, eff2.

All motors with standard rating included in this catalogue comply with efficiency class eff2 and bear the corresponding label on the rating plate.

Mechanical Design

Degrees of protection

Degrees of protection for mechanical machines are designated in accordance with IEC 60034-5 by the letters **IP** and two characteristic numerals.

First numeral:	
Protection against contact and ingress of foreign bodies	
IP	Description
0	No special protection
1	Protection against solid foreign bodies larger than 50 mm (Example: inadvertent contact with the hand)
2	Protection against solid foreign bodies larger than 12 mm (Example: inadvertent contact with the fingers)
3	Protection against solid foreign bodies larger than 2.5 mm (Example: Wires, tools)
4	Protection against solid foreign bodies larger than 1 mm (Example: Wires, bands)
5	Protection against dust (harmful deposits of dust)
6	Complete protection against dust. Is not described for electrical machines to IEC 34-5.

Second numeral:	
Protection against ingress of water	
IP	Description
0	No special protection
1	Protection against vertically falling water drops (condensation)
2	Protection against dropping water when inclined by up to 15°
3	Protection against waterspray at up to 60° from vertical
4	Protection against water splashed from any direction
5	Protection against water projected by a nozzle from any direction
6	Protection against heavy seas or water projected in powerful jets
7	Protection when submerged between 0.15 m and 1 m
8	Protection when continuously submerged in water at conditions agreed between the manufacturer and the user

Challenge motors conform to protection IP 55 / IEC 60034-5.

The standard design for horizontal mounting is suitable for indoor and protected outdoor installation, climate group temperature ratings -15° C to +40° C.

For unprotected outdoor installation or severe climatic conditions (moisture category wet, climate group WORLDWIDE, extremely dusty site conditions, aggressive industrial atmosphere, danger of storm rain and coastal climate, danger of attack by termites, etc.), as well as vertical mounting, special protective measures are recommended, such as:

- Protective cowl (for vertical *shaft-down* motors)
- For vertical *shaft-up* motors additional bearing seal and flange drainage
- Special paint finish
- Treatment of winding with protective moisture-proof varnish
- Anti-condensation heating
- Condensation drain holes

The special measures to be applied have to be agreed with the factory once the conditions of installation have been settled.

The corresponding conditions of installation have to be clearly indicated in the order.

Conditions of Installation

Challenge motors are designed for operation at altitudes < 1000m above sea level and at ambient temperatures of up to 40°C. Exceptions are indicated on the rating plate.

Permissible temperature rises to various standards

Standard/Regulation	Temperature of coolant	Permissible temperature rise in K (measured by resistance method) Temperature class		
		B	F	H
VDE 0530 part 1	40	80	105	125
International IEC 34-1	40	80	105	125
Britain BS 2613	40	80	105	↑ on request ↓
Canada CSA	40	80	105	
USA NEMA and ANSI	40	80	105	
Italy CEI	40	80	105	
Sweden SEN	40	80	105	
Norway NEK	40	80	105	
Belgium NBN	40	80	105	
France NF	40	80	105	
Switzerland SEV	40	80	105	
India IS	40	80	-	
Germanischer Lloyd ¹⁾	45	75	90	
American Bureau of Shipping ¹⁾	50	70	95	
Bureau Veritas ¹⁾	45	70	100	
Norske Veritas ¹⁾	45	70	90 ²⁾	
Lloyds Register ¹⁾	45	70	90	
Registro Italiano Navale ¹⁾	45	70	90	
Korean Register ¹⁾	50	70	90	
China Classification Society ¹⁾	45	75	95	

¹⁾ Classification societies for marine motors

²⁾ Only with special approval

Standards and Regulations

The motors comply with the relevant standards and regulations

Title	IEC	EU CENELEC	D DIN/VDE	I CEI/UNEL	GB BS	F NFC	E UNE
Electrical							
General stipulations for electrical machines	60034-1	EN 60034-1	DIN EN 60034-1	CEI EN 60034-1	4999-1 4999-69	51-200 51-111	UNE EN 60034-1
Rotating electrical machines: methods for determining losses and efficiency using tests	60034-2	HD 53 2	DIN EN 60034-2	CEI EN 60034-2	4999-34	51-112	UNE EN 60034-2
Terminal markings and direction of rotation of rotating electrical machines	60034-8	HD 53 8 S4	DIN VDE 0530-8	CEI 2-8	4999-3	51-118	20113-8-96
Starting performance	60034-12	EN 60034-12	DIN EN 6034-12	CEI EN 60034-12	4999-112		UNE EN 60034-12
Standard voltages	60038	HD 472 S1	DIN IEC 60038	CEI 8-6			
Insulating materials	60085		DIN IEC 60085	CEI 15-26			

Mechanical							
Dimensions and output ratings	60072		DIN EN 50347	UNEL 13113			
Mounting dimensions and relationship frame sizes-output ratings, IM B3	60072	HD 231	DIN 42673-1	UNEL 13113	499-10 51-110	51-105 51-104	20106-1/26 1980
Mounting dimensions and relationship frame sizes-output ratings, IM B5	60072	HD 231	DIN 42677-1	UNEL 13117		20106-2-74	
Mounting dimensions and relationship frame sizes-output ratings, IM B14	60072	HD 231	DIN 42677-1	UNEL 13118	499-10 51-110	51-105 51-104	20106-2-IC-80
Cylindrical shaft ends for electric motors	60072	HD 231	DIN 748-3	UNEL 13502	4999-10	51-111	
Degrees of protection	60034-5	EN 60034-5	DIN IE60034-5	CEI IE60034-5	4999-20	EN 60034-5	20111-5
Methods of cooling	60034-6	EN 60034-6	DIN EN60034-6	CEI EN60034-6	4999-21		EN 60034-6
Mounting arrangements	60034-7	EN 60034-7	DIN EN60034-7	CEI EN60034-7	4999-22	51-117	EN 60034-7
Noise limits	60034-9	EN 60034-9	DIN EN60034-9	CEI EN60034-9	4999-51	51-119	EN 60034-9
Mechanical vibration	60034-14	EN 60034-14	DIN EN60034-14	CEI EN60034-14	4999-50	51-111	EN 60034-14
Mounting flanges			DIN 42948	UNEL 13501			
Tolerances of mounting and shaft extensions			DIN 42955	UNEL 13501/ 13502			
Classification of environmental conditions	600721-2-1		DIN IEC 60721-2-1	CEI 75-1			
Mechanical vibration; balancing	ISO 8821		DIN ISO 8821				

Starting Options

Connection

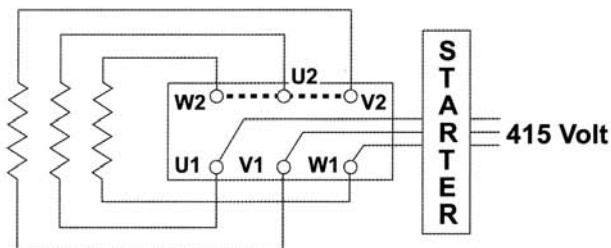
A motor's rated voltage must agree with the power supply line-to-line voltage. Care must therefore be taken to ensure the correct connection to the motor terminals.

Internal connections, Voltages and VF drive selection.

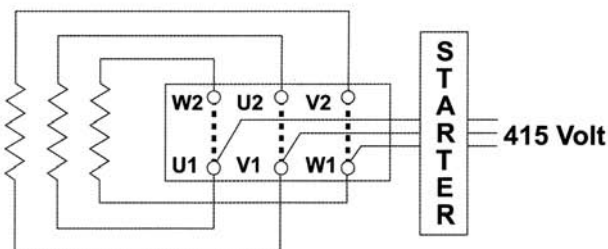
Standard terminal connections for motors 3.0 kW and below is 230 volt delta / 400 volt star. These motors are designed for 400 volt Direct On Line (D.O.L.) starting, when connected in the star configuration. They are also suitable for operation with 230 volt three phase variable frequency drives, when connected in the delta configuration.

Standard terminal connections for motors 4.0 kW and above is 400 volt delta /690 volt star. These motors are designed for 400 volt Direct On Line (D.O.L.) starting, when connected in the delta configuration. They are also suitable for operation with 400 volt three phase variable frequency drives. Alternatively they can be operated D.O.L. in the star configuration from a 690 volt supply or with a 690 volt variable frequency drive. In this case the drive must be supplied with an output reactor to protect the winding insulation. These motors are also suitable for 400 volt star-delta starting as described below.

Motor connected for D.O.L. starting with bridges in place for star connection (3.0.kW and below)



Motor connected for D.O.L. starting with bridges in place for delta connection (4.0.kW and above)



D.O.L. Starters

When an electric motor is started by direct connection to the power supply (D.O.L.), it draws a high current, called the 'starting current', which is approximately equal in magnitude to the locked rotor current I_S . As listed in the performance data locked rotor current can be up to 8 times the rated current I_N of the motor. In circumstances where the motor starts under no load or where high starting torque is not required, it is preferable to reduce the starting current by one of the following means.

Star - Delta starting

Motors 4.0 kW and above are suitable for the star-delta starting method. Through the use of a star-delta starter, the motor terminals are connected in the star configuration during starting, and reconnected to the delta configuration when running. The benefits of this starting method are a significantly lower starting current, to a value about $\frac{1}{3}$ of the D.O.L. starting current, and a corresponding starting torque also reduced to about $\frac{1}{3}$ of its D.O.L. value. It should be noted that a second current surge occurs on changeover to the delta connection. The level of this surge will depend on the speed the motor has reached at the moment of changeover.

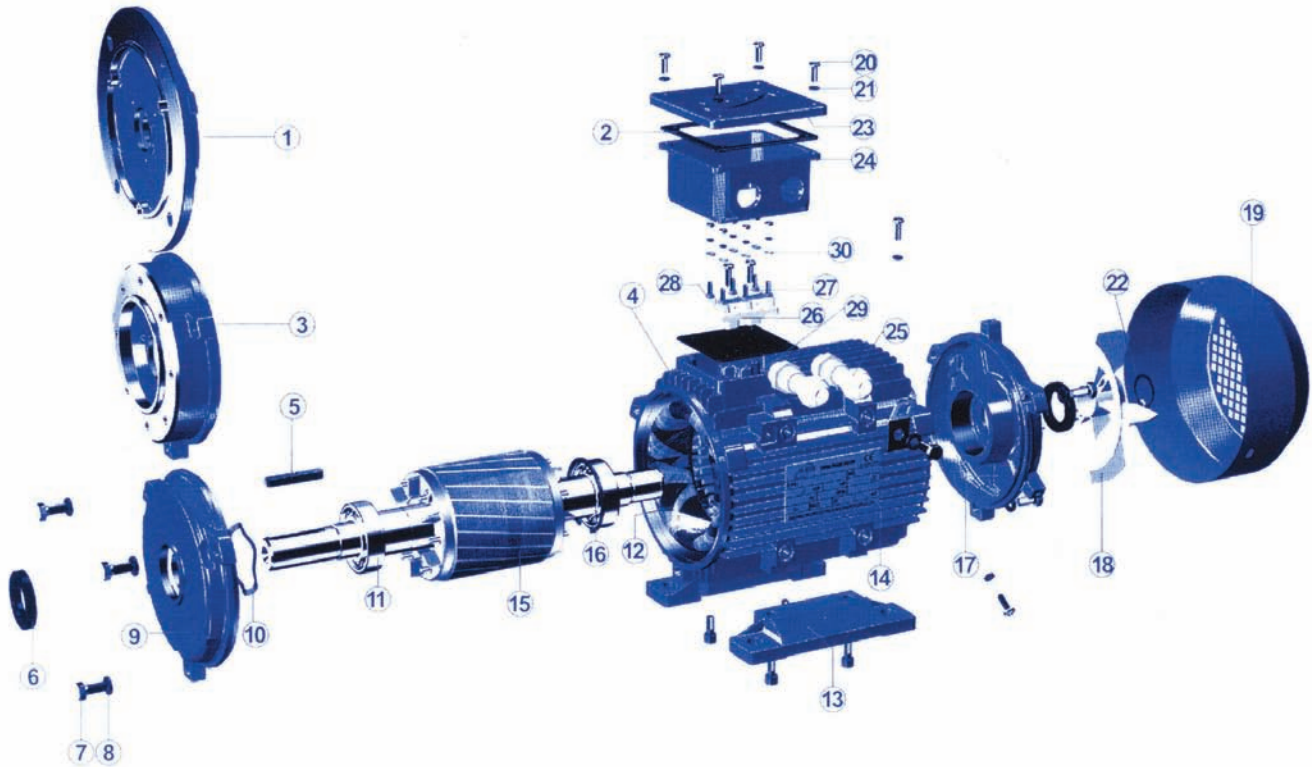
Electronic soft starters

Through the use of an electronic soft starter, which controls such parameters as current and voltage, the starting sequence can be totally controlled. The starter can be programmed to limit the amount of starting current and by limiting the rate of the current increase the startup time is extended. Where large heavy loads are to be started it is especially important to extend the startup time.

Variable frequency drives

Variable frequency drives are primarily recognized for their ability to manipulate power from a constant 3 phase 50 Hz power supply converting it to variable frequency power. This enables the speed of motor to be matched to its load in a flexible and energy efficient manner. The only way of producing starting torque equal to full load torque with full load current is by using VF drives. The functionally flexible VF drive is also commonly used to reduce energy consumption on fans, pumps and compressors and offer a simple and repeatable method of changing speeds or flow rates.

Components

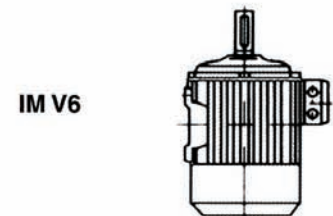
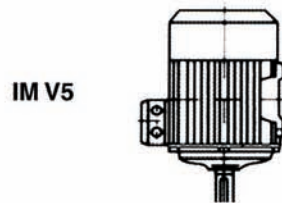
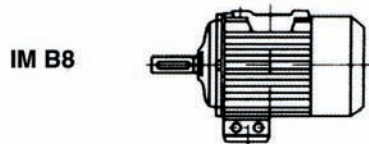
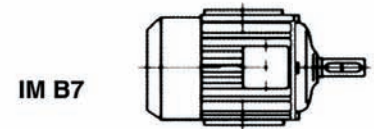
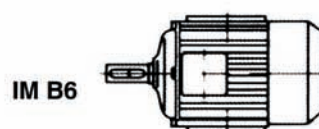
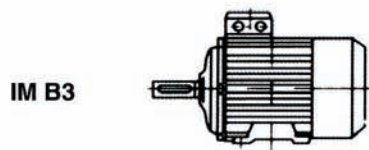


- | | | |
|--------------------|---------------------|-----------------------|
| 1. B5 Flange | 11. Bearing | 21. Washer |
| 2. Gasket | 12. Stator | 22. Fan clamp |
| 3. B14 Flange | 13. Multimount Feet | 23. Terminal box lid |
| 4. Housing | 14. Name plate | 24. Terminal box base |
| 5. Key | 15. Rotor | 25. Cable gland |
| 6. Oil Seal | 16. Circlip | 26. Terminal board |
| 7. Bolt | 17. Rear end shield | 27. Brass lug |
| 8. Spring washer | 18. Fan | 28. Brass nut |
| 9. Front endshield | 19. Fan cowl | 29. Earth mark |
| 10. Wave washer | 20. Screw | 30. Brass washer |

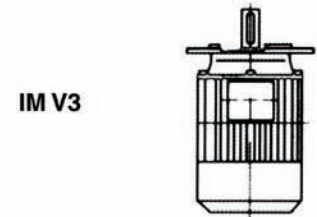
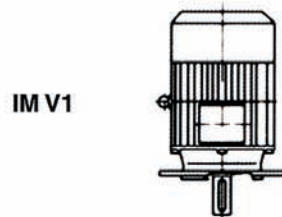
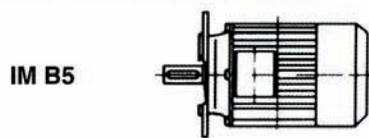
Mounting Arrangements

Mounting arrangements to IEC 60034-7

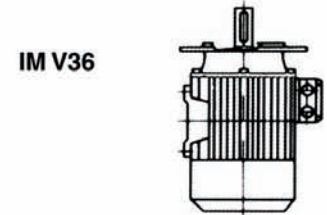
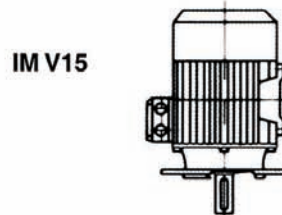
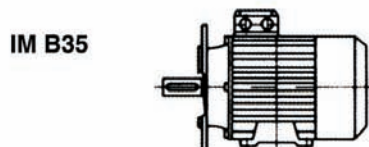
IM B3 = Foot mounted



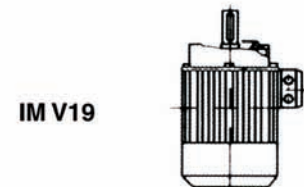
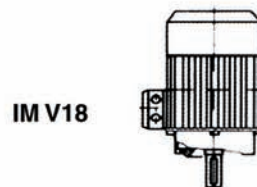
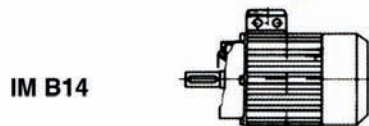
IM B5 = Flange mounted



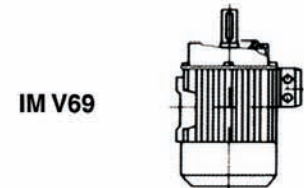
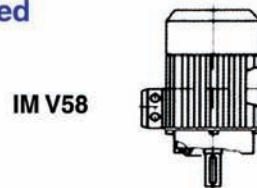
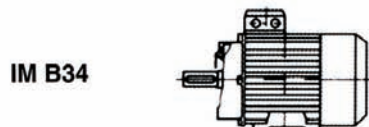
IM B35 = Foot & flange mounted



IM B14 = Reduced flange mounted



IM B34 = Foot & reduced flange mounted



Technical Data EFF 2

Speed 3000 rev/min 2-Pole 50 Hz

Type	Output		Speed rev/min	In A			Efficiency n% 100%	Power Factor Cos 10%	Tn Nm	Ts Tn	Tmax Tn	Is In	Moment (J) kgm ²	Noise LwdB(A)	Weight mass/kg
	kW	hp		380V	400V	415V									
CML 561-2	0.09	0.12	2750	0.32	0.30	0.29	62.0	0.70	0.31	2.1	2.2	5.2	0.00018	57	3.6
CML 562-2	0.12	0.18	2750	0.38	0.36	0.72	67.0	0.72	0.41	2.1	2.2	5.2	0.00023	57	3.9
CML 631-2	0.18	0.25	2720	0.53	0.50	0.18	65.0	0.80	0.61	2.2	2.3	5.5	0.00031	58	4.8
CML 632-2	0.25	0.37	2720	0.69	0.66	0.63	68.0	0.81	0.96	2.2	2.3	5.5	0.00060	58	5.1
CML 711-2	0.37	0.50	2740	0.99	0.94	0.91	70.0	0.81	1.26	2.2	2.3	6.1	0.00075	61	6.0
CML 712-2	0.55	0.75	2740	1.40	1.33	1.28	73.0	0.82	1.88	2.2	2.3	6.1	0.00090	61	6.5
CML 801-2	0.75	1.0	2840	1.83	1.73	1.68	75.1	0.83	2.54	2.2	2.3	6.1	0.0012	64	8.7
CML 802-2	1.1	1.5	2840	2.58	2.45	2.37	77.0	0.84	3.72	2.2	2.3	7.0	0.0014	64	9.5
CML 90S-2	1.5	2.0	2840	3.43	3.26	3.14	79.0	0.84	5.14	2.2	2.3	7.0	0.0029	69	11.8
CML 90L-2	2.2	3.0	2840	4.85	4.61	4.44	81.1	0.85	7.40	2.2	2.3	7.0	0.0055	69	13.5
CML 100L-2	3.0	4.0	2860	6.33	6.01	5.79	82.8	0.87	9.95	2.2	2.3	7.5	0.0109	73	21.0
CML 112M-2	4.0	5.5	2880	8.18	7.77	7.49	84.4	0.88	13.22	2.2	2.3	7.5	0.0126	74	28.0
CML 132S1-2	5.5	7.5	2900	11.1	10.5	10.1	85.9	0.88	18.11	2.2	2.3	7.5	0.0377	77	39.0
CML 132S2-2	7.5	10	2900	14.9	14.1	13.6	87.2	0.88	24.70	2.2	2.3	7.5	0.0499	77	44.5
CML 160M1-2	11	15	2930	21.2	20.2	19.4	88.5	0.89	35.85	2.2	2.3	7.5	0.055	83	69.5
CML 160M2-2	15	20	2930	28.6	27.2	26.2	89.5	0.89	48.89	2.2	2.3	7.5	0.075	83	78.0
CML 160L-2	18.5	25	2930	34.6	32.9	31.7	90.2	0.90	60.30	2.2	2.3	7.5	0.124	83	88.5
CML 180M-2	22	30	2940	40.9	38.9	37.5	90.7	0.90	71.46	2.0	2.3	7.5	0.075	89	102.3
CML 200L1-2	30	40	2950	55.4	52.6	50.7	91.5	0.90	97.12	2.0	2.3	7.5	0.124	92	119
CML 200L2-2	37	50	2950	67.7	64.4	62	92.2	0.90	119.78	2.0	2.3	7.5	0.139	92	125

Speed 1500 rev/min 4-Pole 50 Hz

Type	Output		Speed rev/min	In A			Efficiency n% 100%	Power Factor Cos 10%	Tn Nm	Ts Tn	Tmax Tn	Is In	Moment (J) kgm ²	Noise LwdB(A)	Weight mass/kg
	kW	hp		380V	400V	415V									
CML 561-4	0.06	0.09	1325	0.28	0.27	0.26	56.0	0.58	0.43	2	2.1	4.0	0.0003	48	3.6
CML 562-4	0.09	0.12	1325	0.39	0.37	0.35	58.0	0.61	0.64	2	2.1	4.0	0.0004	48	3.9
CML 631-4	0.12	0.18	1310	0.44	0.42	0.41	57.0	0.72	0.84	2.1	2.2	4.4	0.0005	48	4.8
CML 632-4	0.18	0.25	1310	0.62	0.59	0.57	60.0	0.73	1.26	2.1	2.2	4.4	0.0006	48	5.1
CML 711-4	0.25	0.37	1330	0.79	0.75	0.72	65.0	0.74	1.73	2.1	2.2	5.2	0.0008	53	6.0
CML 712-4	0.37	0.50	1330	1.12	1.06	1.02	67.0	0.75	2.56	2.1	2.2	5.2	0.0013	53	6.3
CML 801-4	0.55	0.75	1390	1.57	1.49	1.43	71.1	0.75	3.75	2.3	2.3	5.2	0.0018	58	9.4
CML 802-4	0.75	1.0	1390	2.05	1.95	1.88	73.1	0.76	5.11	2.3	2.3	6.0	0.0021	58	10.8
CML 90S-4	1.1	1.5	1390	2.84	2.70	2.60	76.3	0.77	7.50	2.3	2.3	6.0	0.0023	59	12.0
CML 90L-4	1.5	2.0	1390	3.67	3.49	3.36	78.6	0.79	10.23	2.3	2.3	6.0	0.0027	59	13.8
CML 100L1-4	2.2	3.0	1410	5.08	4.83	4.65	81.2	0.81	14.8	2.3	2.3	7.0	0.0054	61	20.8
CML 100L2-4	3.0	4.0	1410	6.72	6.39	6.15	82.7	0.82	20.18	2.3	2.3	7.0	0.0067	61	23.5
CML 112M-4	4.0	5.5	1435	8.79	8.35	8.05	84.3	0.82	26.53	2.3	2.3	7.0	0.0095	62	29.5
CML 132S-4	5.5	7.5	1440	11.7	11.1	10.7	85.8	0.83	36.48	2.3	2.3	7.0	0.0214	69	41.0
CML 132M-4	7.5	10	1440	15.6	14.8	14.3	87.1	0.84	0.74	2.3	2.3	7.0	0.0296	69	47.5
CML 160M-4	11	15	1460	22.5	21.4	20.6	88.5	0.84	0.74	2.3	2.3	7.0	0.0747	72	72.5
CML 160L-4	15	20	1460	30	28.5	27.4	89.5	0.85	0.75	2.3	2.3	7.0	0.0918	72	85.6
CML 180M-4	18.5	25	1470	36.3	34.5	33.2	90.1	0.86	120.19	2.2	2.3	7.5	0.1390	76	101
CML 180L-4	22	30	1470	42.9	40.8	39.3	90.6	0.86	142.93	2.2	2.3	7.5	0.1580	76	112
CML 200L-4	30	40	1470	57.9	55.0	53.0	91.5	0.86	160.96	2.2	2.3	7.2	0.2620	79	122

From frame sizes 180 to 200 the motor can be supplied in a cast iron construction (ref CMC).

Technical Data EFF 2

Speed 1000 rev/min 6-Pole 50 Hz

Type	Output		Speed rev/min	In A			Efficiency n% 100%	Power Factor Cos 10%	Tn Nm	Ts Tn	Tmax Tn	Is In	Moment (J) kgm ²	Noise LwdB(A)	Weight mass/kg
	kW	hp		380V	400V	415V									
CML 631-6	0.09	0.12	840	0.52	0.49	0.47	44.0	0.60	1.80	1.8	1.9	3.5	0.00025	48	4.8
CML 632-6	0.12	0.18	850	0.63	0.60	0.58	48.0	0.60	2.25	1.8	1.9	3.5	0.0004	48	5.1
CML 711-6	0.18	0.25	850	0.74	0.70	0.68	56.0	0.66	1.91	1.9	2.0	4.0	0.0011	49	6.0
CML 712-6	0.25	0.37	850	0.95	0.90	0.87	59.0	0.68	2.65	1.9	2.0	4.0	0.0014	49	6.3
CML 801-6	0.37	0.5	885	1.30	1.23	1.19	62.0	0.70	3.93	1.9	2.0	4.7	0.0016	51	8.9
CML 802-6	0.55	0.75	885	1.78	1.69	1.63	65.0	0.72	5.84	1.9	2.1	4.7	0.0019	51	10.4
CML 90S-6	0.75	1	910	2.29	2.18	2.10	69.0	0.72	7.87	2.0	2.1	5.5	0.0029	54	12.1
CML 90L-6	1.1	1.5	910	3.18	3.02	2.91	72.1	0.73	11.54	2.0	2.1	5.5	0.0035	54	13.7
CML 100L-6	1.5	2	920	3.99	3.79	3.66	76.1	0.75	15.24	2.0	2.1	5.5	0.0069	58	23.0
CML 112M-6	2.2	3	935	5.55	5.28	5.08	79.2	0.76	22.35	2.1	2.1	6.5	0.0140	62	28.2
CML 132S-6	3	4	960	7.40	7.03	6.77	81.1	0.76	29.84	2.1	2.1	6.5	0.0286	66	40.3
CML 132M1-6	4	5.5	960	9.74	9.25	8.92	82.1	0.76	39.79	2.1	2.1	6.5	0.0357	66	43.0
CML 132M2-6	5.5	7.5	960	12.9	12.3	11.8	84.1	0.77	54.71	2.1	2.1	6.5	0.0449	66	47.2
CML 160M-6	7.5	10	970	17.2	16.3	15.7	86.1	0.77	73.84	2.1	2.1	6.5	0.0810	70	70.6
CML 160L-6	11	15	970	24.5	23.2	22.4	87.6	0.78	108.30	2.1	2.1	6.5	0.1160	70	85.0
CML 180L-6	15	20	970	31.6	30.0	28.9	89.1	0.81	147.68	2.1	2.1	7.0	0.2070	73	105
CML 200L1-6	18.5	25	980	38.5	36.6	35.3	90.1	0.81	182.14	2.1	2.0	7.0	0.3150	76	115
CML 200L2-6	22	30	980	44.7	42.5	40.9	90.1	0.83	216.60	2.1	2.0	7.0	0.3600	76	121

Speed 750 rev/min 8-Pole 50 Hz

Type	Output		Speed rev/min	In A			Efficiency n% 100%	Power Factor Cos 10%	Tn Nm	Ts Tn	Tmax Tn	Is In	Moment (J) kgm ²	Noise LwdB(A)	Weight mass/kg
	kW	hp		380V	400V	415V									
CML 711-8	0.09	0.12	600	0.60	0.57	0.55	40.0	0.57	1.95	1.8	1.9	2.8	0.0008	48	6.0
CML 712-8	0.12	0.18	600	0.71	0.70	0.65	45.0	0.57	2.16	1.8	1.9	2.8	0.0010	48	6.3
CML 801-8	0.18	0.25	645	0.88	0.84	0.80	51.0	0.61	2.5	1.8	1.9	3.3	0.0025	48	8.9
CML 802-8	0.25	0.37	645	1.15	1.10	1.06	54.0	0.61	3.5	1.8	1.9	3.3	0.0030	48	10.4
CML 90S-8	0.37	0.5	670	1.49	1.41	1.36	62.0	0.61	5.1	1.8	1.9	4.0	0.0051	53	12.1
CML 90L-8	0.55	0.75	670	2.17	2.07	1.99	63.0	0.61	7.6	1.8	2.0	4.0	0.0065	53	13.7
CML 100L1-8	0.75	1	680	2.40	2.28	2.19	71.0	0.67	10.2	1.8	2.0	4.0	0.0095	56	23.0
CML 100L2-8	1.1	1.5	680	3.32	3.15	3.04	73.0	0.69	15.0	1.8	2.0	5.0	0.0110	56	25.1
CML 112M-8	1.5	2	690	4.40	4.18	4.03	75.0	0.69	20.5	1.8	2.0	5.0	0.0245	59	28.2
CML 132S-8	2.2	3	705	6.04	5.73	5.53	78.0	0.71	19.6	1.8	2.0	6.0	0.0314	61	40.3
CML 132M-8	3	4	705	7.90	7.51	7.24	79.0	0.73	40.4	1.8	2.0	6.0	0.0395	61	45.0
CML 160M1-8	4	5.5	720	10.30	9.76	9.41	81.0	0.73	53.1	1.9	2.0	6.0	0.0753	65	68.5
CML 160M2-8	5.5	7.5	720	13.60	12.90	12.50	83.0	0.74	72.6	2.0	2.0	6.0	0.0931	65	76.0
CML 160L-8	7.5	10	720	17.80	16.90	16.30	85.5	0.75	99.5	2.0	2.0	6.0	0.1260	65	86.2
CML 180L-8	11	15	730	25.10	23.9	23.00	87.5	0.76	143.90	2.0	2.0	6.0	0.2030	70	101
CML 200L-8	15	20	730	34.10	32.4	31.20	88.0	0.76	196.23	2.0	2.0	6.6	0.3990	73	120

From frame sizes 180 to 200 the motor can be supplied in a cast iron construction (ref CMC).

Cable Entry and Bearing Sales

Cable Entry

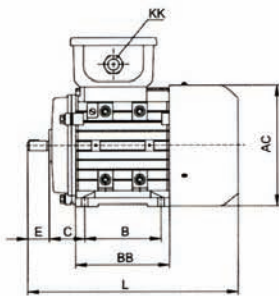
Classified number	Frame size	Max .fl.amps	Entry size
1	63-80	2.6	1 x M20x1.5
2	90-100	6.8	1 x M20x1.5
3	112-132	15.4	2 x M32x1 .5
4	160-180	42.5	2 x M40x1.5
5	200	84.2	2 x M50x1.5

Bearing Size

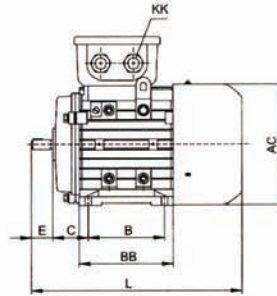
Frame size	Poles	Drive End	Non-Drive End
56	2 to 4	6201 2RS-C3 (6201 ZZ-C3)	6201 2RS-C3 (6201 ZZ-C3)
63	2 to 6	6201 2RS-C3 (6201 ZZ-C3)	6201 2RS-C3 (6201 ZZ-C3)
71	2 to 8	6202 2RS-C3 (6202 ZZ-C3)	6202 2RS-C3 (6202 ZZ-C3)
80	2 to 8	6204 2RS-C3 (6204 ZZ-C3)	6204 2RS-C3 (6204 ZZ-C3)
90	2 to 8	6205 2RS-C3 (6205 ZZ-C3)	6205 2RS-C3 (6205 ZZ-C3)
100	2 to 8	6206 2RS-C3 (6206 ZZ-C3)	6206 2RS-C3 (6206 ZZ-C3)
112	2 to 8	6206 2RS-C3 (6206 ZZ-C3)	6206 2RS-C3 (6206 ZZ-C3)
132	2 to 8	6208 2RS-C3 (6208 ZZ-C3)	6208 2RS-C3 (6208 ZZ-C3)
160	2 to 8	6309 2RS-C3 (6309 ZZ-C3)	6309 2RS-C3 (6309 ZZ-C3)
180	2 to 8	6311 ZZ-C3	6311 ZZC3
200	2 to 8	6312 ZZ-C3	6312 ZZC3

Mounting and Overall Dimensions

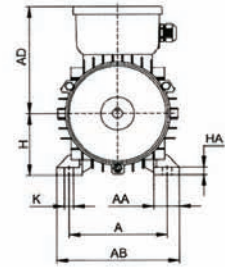
IM B3 Foot mounted frame size 56 to 200



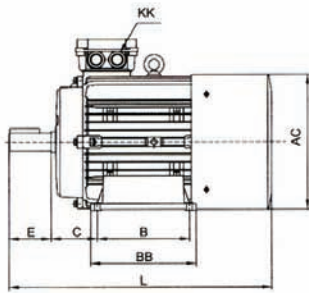
56-90



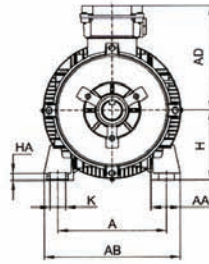
100-160



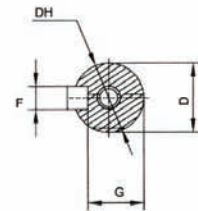
56-160



180-200



180-200

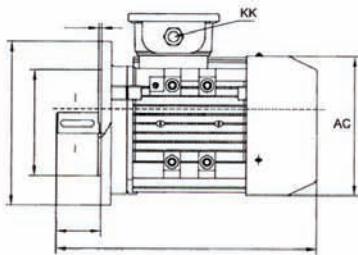


Frame Size	Mounting Dimensions																	Overall Dimensions L	
	A	AA	AB	BB	HA	AC	AD	B	C	D	DH	E	F	G	H	K	KK		
	Metric		PG																
56	90	23	115	88	7	110	100	71	36	9	M4x12	20	3	7.2	56	5.8	1-M20X1.5	1-PG11	199
63	100	24	135	100	7	130	111	80	40	11	M4x12	23	4	8.5	63	7.0	1-M20X1.5	1-PG11	217
71	112	26	150	110	8	145	118	90	45	14	M5x12	30	5	11	71	7.0	1-M20X1.5	1-PG11	245
80	125	35	165	125	9	175	134	100	50	19	M6x16	40	6	15.5	80	10.0	1-M25X1.5	1-PG16	287
90S	140	37	180	125	10	195	140	100	56	24	M8x19	50	8	20.0	90	10.0	1-M25X1.5	1-PG16	315
90L	140	37	180	150	10	195	140	125	56	24	M8x19	50	8	20.0	90	10.0	1-M25X1.5	1-PG16	340
100L	160	40	205	172	11	215	160	140	63	28	M10x22	60	8	24.0	100	12.0	1-M32X1.5	1-PG21	385
112M	190	41	230	181	12	240	178	140	70	28	M10x22	60	8	24.0	112	12.0	2-M32X1.5	2-PG21	400
132S	216	51	270	186	15	275	206	140	89	38	M12x28	80	10	33.0	132	12.0	2-M32X1.5	2-PG21	483
132M	216	51	270	224	15	275	206	178	89	38	M12x28	80	10	33.0	132	12.0	2-M32X1.5	2-PG21	510
160M	254	55	320	260	18	330	255	210	108	42	M16x36	110	12	37.0	160	15.0	2-M40X1.5	2-PG29	615
160L	254	55	320	304	18	330	255	254	108	42	M16x36	110	12	37.0	160	16.0	2-M40X1.5	2-PG29	670
180M	279	75	350	315	18	355	272	241	121	48	M16x36	110	14	42.5	180	15	2-M32x1.5	2-PG29	765
180L	279	75	350	315	18	355	272	279	121	48	M16x36	110	14	42.5	180	15	2-M32x1.5	2-PG29	765
200L	318	100	398	355	24	355	272	305	133	55	M20x42	110	16	49	200	19	2-M32x1.5	2-PG36	790

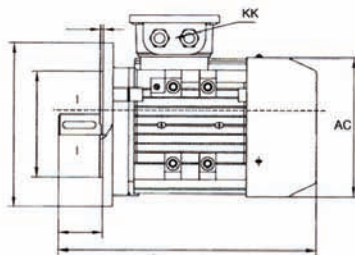
All dimensions in millimetres unless otherwise stated.

Mounting and Overall Dimensions

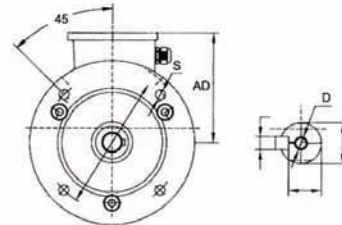
IM B5 Flange mounted frame size 56 to 200



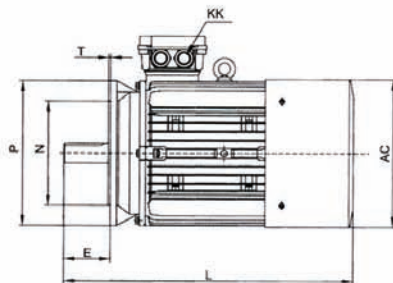
56-90



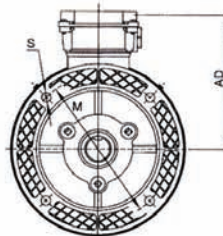
100-160



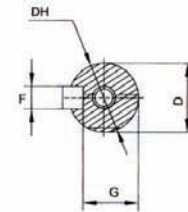
56-160



180-200



180-200

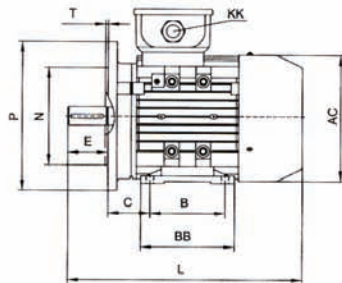


Frame Size	Mounting Dimensions													Overall Dimensions						
	HA	AC	AD	B	C	D	DH	E	F	G	H	K	KK		L	M	N	P	S	T
													Metric	PG						
56	7	110	100	71	36	9	M4x12	20	3	7.2	56	5.8	1-M20x1.5	1-PG11	199	100	80	120	7	3.0
63	7	130	111	80	40	11	M4x12	23	4	8.5	63	7.0	1-M20x1.5	1-PG11	217	115	95	140	10	3.0
71	8	145	118	90	45	14	M5x12	30	5	11	71	7.0	1-M20x1.5	1-PG11	245	130	110	160	12	3.5
80	9	175	134	100	50	19	M6x16	40	6	15.5	80	10.0	1-M25x1.5	1-PG16	287	165	130	200	12	3.5
90S	10	195	140	100	56	24	M8x19	50	8	20.0	90	10.0	1-M25x1.5	1-PG16	315	165	130	200	12	3.5
90L	10	195	140	125	56	24	M8x19	50	8	20.0	90	10.0	1-M25x1.5	1-PG16	340	165	130	200	12	3.5
100L	11	215	160	140	63	28	M10x22	60	8	24.0	100	12.0	1-M32x1.5	1-PG21	385	215	180	250	15	4.0
112M	12	240	178	140	70	28	M10x22	60	8	24.0	112	12.0	2-M32x1.5	2-PG21	400	215	180	250	15	4.0
132S	15	275	206	140	89	38	M12x28	80	10	33.0	132	12.0	2-M32x1.5	2-PG21	483	265	230	300	15	4.0
132M	15	275	206	178	89	38	M12x28	80	10	33.0	132	12.0	2-M32x1.5	2-PG21	510	265	230	300	15	4.0
160M	18	330	255	210	108	42	M16x36	110	12	37.0	160	15.0	2-M40x1.5	2-PG29	615	300	250	350	19	5.0
160L	18	330	255	254	108	42	M16x36	110	12	37.0	160	16.0	2-M40x1.5	2-PG29	670	300	250	350	19	5.0
180M	18	355	272	241	121	48	M16x36	110	14	42.5	180	15	2-M32x1.5	2-PG29	765	300	250	350	19	5.0
180L	18	355	272	279	121	48	M16x36	110	14	42.5	180	15	2-M32x1.5	2-PG29	765	300	250	350	19	5.0
200L	24	355	272	305	133	55	M20x42	110	16	49	200	19	2-M32x1.5	2-PG36	790	350	300	400	19	5.0

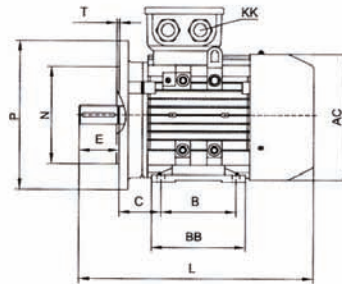
All dimensions in millimetres unless otherwise stated.

Mounting and Overall Dimensions

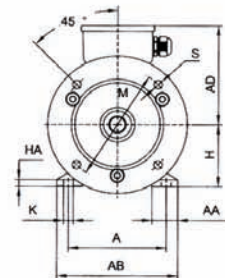
IM B35 Foot and flange mounted frame size 56 to 200



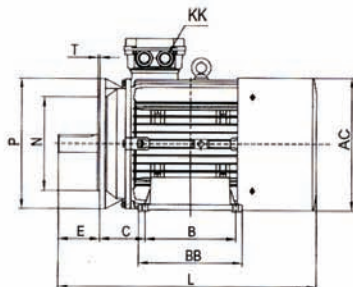
56-90



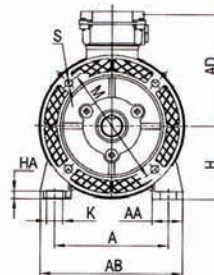
100-160



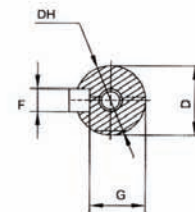
56-160



180-200



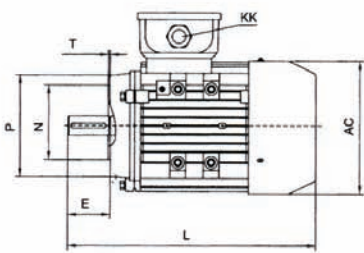
180-200



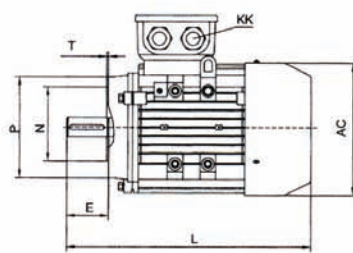
Frame Size	Mounting Dimensions																Overall Dimensions							
	A	AA	AB	BB	HA	AC	AD	B	C	D	DH	E	F	G	H	K	KK		L	M	N	P	S	T
56	90	23	115	88	7	110	100	71	36	9	M4X12	20	3	7.2	56	5.8	1-M20X1.5	1-PG11	199	100	80	120	7	3.0
63	100	24	135	100	7	130	111	80	40	11	M4X12	23	4	8.5	63	7.0	1-M20X1.5	1-PG11	217	115	95	140	10	3.0
71	112	26	150	110	8	145	118	90	45	14	M5X12	30	5	11	71	7.0	1-M20X1.5	1-PG11	245	130	110	160	12	3.5
80	125	35	165	125	9	175	134	100	50	19	M6X16	40	6	15.5	80	10.0	1-M25X1.5	1-PG16	287	165	130	200	12	3.5
90S	140	37	180	125	10	195	140	100	56	24	M8X19	50	8	20.0	90	10.0	1-M25X1.5	1-PG16	315	165	130	200	12	3.5
90L	140	37	180	150	10	195	140	125	56	24	M8X19	50	8	20.0	90	10.0	1-M25X1.5	1-PG16	340	165	130	200	12	3.5
100L	160	40	205	172	11	215	160	140	63	28	M10X22	60	8	24.0	100	12.0	1-M32X1.5	1-PG21	385	215	180	250	15	4.0
112M	190	41	230	181	12	240	178	140	70	28	M10X22	60	8	24.0	112	12.0	2-M32X1.5	2-PG21	400	215	180	250	15	4.0
132S	216	51	270	186	15	275	206	140	89	38	M12X28	80	10	33.0	132	12.0	2-M32X1.5	2-PG21	483	265	230	300	15	4.0
132M	216	51	270	224	15	275	206	178	89	38	M12X28	80	10	33.0	132	12.0	2-M32X1.5	2-PG21	510	265	230	300	15	4.0
160M	254	55	320	260	18	330	255	210	108	42	M16X36	110	12	37.0	160	15.0	2-M40X1.5	2-PG29	615	300	250	350	19	5.0
160L	254	55	320	304	18	330	255	254	108	42	M16X36	110	12	37.0	160	16.0	2-M40X1.5	2-PG29	670	300	250	350	19	5.0
180M	279	75	350	315	18	355	272	241	121	48	M16X36	110	14	42.5	180	15	2-M32x1.5	2-PG29	765	300	250	350	19	5.0
180L	279	75	350	315	18	355	272	279	121	48	M16X36	110	14	42.5	180	15	2-M32x1.5	2-PG29	765	300	250	350	19	5.0
200L	318	100	398	355	24	355	272	305	133	55	M20X42	110	16	49	200	19	2-M32X1.5	2-PG36	790	350	300	400	19	5.0

Mounting and Overall Dimensions

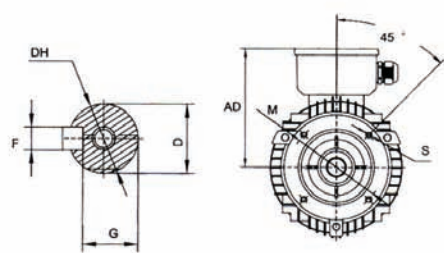
IM B14A Reduced flange mounted frame size 56 to 160



56-90



100-160



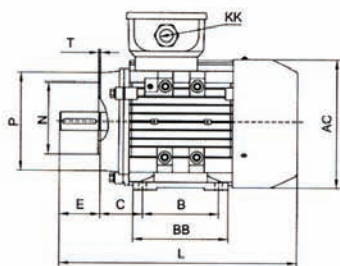
56-160

Frame Size	Mounting Dimensions									Overall Dimensions					
	AC	AD	D	DH	E	F	G	KK		L	M	N	P	S	T
								Metric	PG						
56	110	100	9	M4x12	20	3	7.2	1-M20x1.5	1-PG11	199	65	50	80	M5	2.5
63	130	111	11	M4x12	23	4	8.5	1-M20x1.5	1-PG11	217	75	60	90	M5	2.5
71	145	118	14	M5x12	30	5	11.0	1-M20x1.5	1-PG11	245	85	70	105	M6	2.5
80	175	134	19	M6x16	40	6	15.5	1-M25x1.5	1-PG16	297	100	80	120	M6	3.0
90S	195	140	24	M8x19	50	8	20.0	1-M25x1.5	1-PG16	315	115	95	140	M8	3.0
90L	195	140	24	M8x19	50	8	20.0	1-M25x1.5	1-PG16	340	115	95	140	M8	3.0
100L	215	160	28	M10x22	60	8	24.0	1-M32x1.5	1-PG21	385	130	110	160	M8	3.5
112M	240	178	28	M10x22	60	8	24.0	2-M32x1.5	2-PG21	400	130	110	160	M8	3.5
132S	275	206	38	M12x28	80	10	33.0	2-M32x1.5	2-PG21	483	165	130	200	M10	3.5
132M	275	206	38	M12x28	80	10	33.0	2-M32x1.5	2-PG21	510	165	130	200	M10	3.5
160M	330	255	42	M16x36	110	12	37.0	2-M40x1.5	2-PG29	615	215	180	250	M12	4.0
160L	330	255	42	M16x36	110	12	37.0	2-M40x1.5	2-PG29	670	215	180	250	M12	4.0

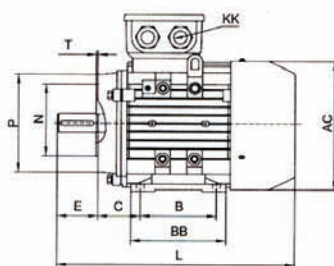
All dimensions in millimetres unless otherwise stated.

Mounting and Overall Dimensions

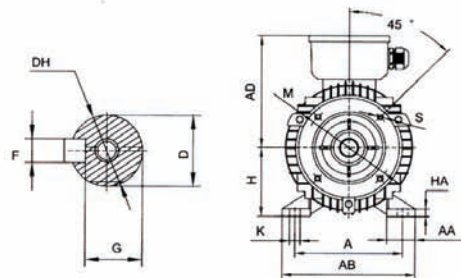
IM B3 B14A Reduced flange and foot mounted frame size 56 to 160



56-90



90-160



56-160

Frame Size	Mounting Dimensions									Overall Dimensions					
	AC	AD	D	DH	E	F	G	KK		L	M	N	P	S	T
								Metric	PG						
56	110	100	9	M4x12	20	3	7.2	1-M20x1.5	1-PG11	199	65	50	80	M5	2.5
63	130	111	11	M4x12	23	4	8.5	1-M20x1.5	1-PG11	217	75	60	90	M5	2.5
71	145	118	14	M5x12	30	5	11.0	1-M20x1.5	1-PG11	245	85	70	105	M6	2.5
80	175	134	19	M6x16	40	6	15.5	1-M25x1.5	1-PG16	297	100	80	120	M6	3.0
90S	195	140	24	M8x19	50	8	20.0	1-M25x1.5	1-PG16	315	115	95	140	M8	3.0
90L	195	140	24	M8x19	50	8	20.0	1-M25x1.5	1-PG16	340	115	95	140	M8	3.0
100L	215	160	28	M10x22	60	8	24.0	1-M32x1.5	1-PG21	385	130	110	160	M8	3.5
112M	240	178	28	M10x22	60	8	24.0	2-M32x1.5	2-PG21	400	130	110	160	M8	3.5
132S	275	206	38	M12x28	80	10	33.0	2-M32x1.5	2-PG21	483	165	130	200	M10	3.5
132M	275	206	38	M12x28	80	10	33.0	2-M32x1.5	2-PG21	510	165	130	200	M10	3.5
160M	330	255	42	M16x36	110	12	37.0	2-M40x1.5	2-PG29	615	215	180	250	M12	4.0
160L	330	255	42	M16x36	110	12	37.0	2-M40x1.5	2-PG29	670	215	180	250	M12	4.0

Single Phase General Information

CHALLENGE series single phase AC electric motors, Are totally enclosed fan cooled (**IC-411**) squirrel caged type, With **IP55** enclosure protection, Class F insulation and **S1** continuous Duty/ Rating.

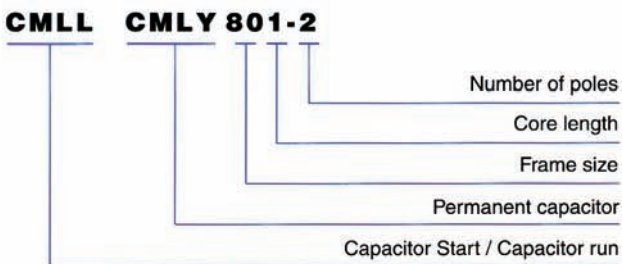
The motors are manufactured from high grade die cast aluminium alloy with a terminal box constructed of engineering grade plastic and come with multi-mount detachable feet as standard, which allows for various mounting positions to be achieved.

The temperature ratings are -15° C to +40° degrees C to a maximum altitude of 1000 metres above sea level.

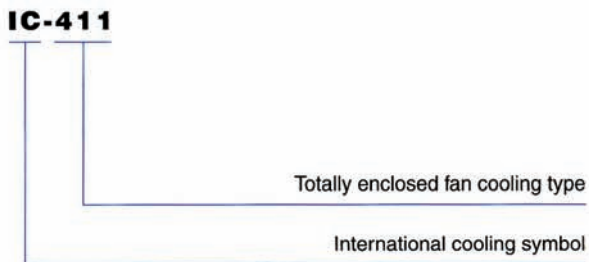
CHALLENGE motors have voltage ratings of:
110v / 220v / 230v / 240v.
Also they have a rated frequency of 50Hz and 60Hz.

Designation

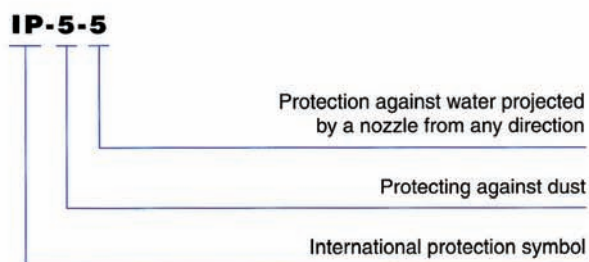
Motor Identification Symbol



Cooling Method



Protection Class



Standards and Regulations




CE Marking

Our single phase induction motors comply with the requirements of the following international standard:

IEC 60034

as well as with the Low Voltage Directive 73/23 (1973), modified by the Directive 93/68 (1993) and the EMC-Directive 89/336.

The above named products comply with the requirements of the EC Directive Machines 89/392. In accordance with this Directive induction motors are components intended solely for integration into other machines. Commissioning is forbidden until conformity of the end product with this Directive is proved!

The  symbol was applied for the first time in 1995.

Technical Data Single Phase

CMLY Single phase motors with permanent capacitors

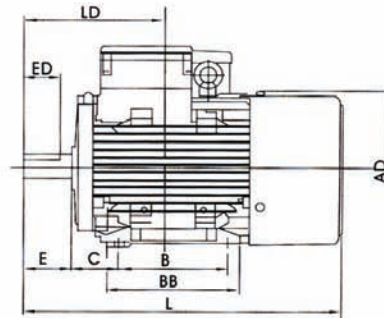
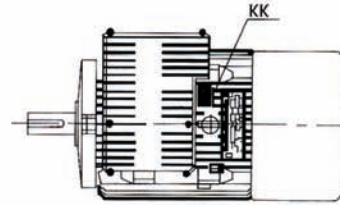
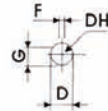
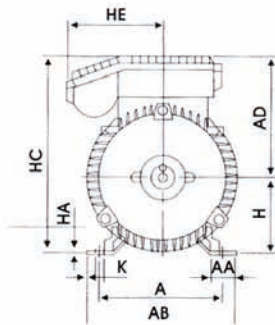
Type	Output		Current (A)	Speed rev/min	Efficiency n% 100%	Power Factor Cos 10%	Ts Tn	Tmax Tn	Is In	Capacity (UF)	Moment (J) kgm ²	Weight mass/kg
	kW	hp										
CMLY561-2	0.09	0.12	0.7	2720	55	0.90	0.60	1.7	3.6	10	0.00010	3.4
CMLY562-2	0.12	0.18	1.0	2720	55	0.90	0.60	1.7	3.6	14	0.00012	3.7
CMLY631-2	0.18	0.25	1.47	2760	60	0.92	0.66	1.7	3.7	10	0.000150	4.1
CMLY632-2	0.25	0.37	1.91	2760	60	0.92	0.66	1.7	3.7	10	0.000163	4.5
CMLY711-2	0.37	0.5	3.12	2800	65	0.92	0.71	1.7	3.7	16	0.000350	6.4
CMLY712-2	0.55	0.75	3.63	2800	65	0.92	0.74	1.7	3.9	20	0.000460	6.6
CMLY801-2	0.75	1	5.50	2810	67	0.92	0.75	1.7	3.9	25	0.000970	8.3
CMLY802-2	1.1	1.5	7.52	2820	67	0.95	0.77	1.7	4.3	30	0.001090	9.1
CMLY90S-2	1.5	2	10.75	2840	72	0.95	0.78	1.7	4.8	40	0.002690	13.5
CMLY90L-2	2.2	3	13.10	2840	73	0.95	0.80	1.7	4.8	50	0.003080	15.6
CMLY100L-2	3	4	16.8	2800	79	0.99	0.80	1.9	4.8	60	0.01260	20.0
CMLY561-4	0.06	0.08	0.65	1360	55	0.90	0.61	1.7	3.1	5	0.00030	3.4
CMLY562-4	0.09	0.12	0.85	1360	55	0.90	0.61	1.7	3.1	6.3	0.00040	3.6
CMLY63M	0.12	0.18	1.40	1340	60	0.9	0.68	1.7	3.2	8	0.000170	4.1
CMLY632-4	0.18	0.25	1.52	1340	60	0.9	0.68	1.7	3.3	10	0.000230	4.6
CMLY711-4	0.25	0.37	2.2	1370	62	0.92	0.73	1.7	3.4	12.5	0.000400	6.3
CMLY712-4	0.37	0.5	2.80	1370	62	0.92	0.75	1.7	3.4	12.5	0.000570	7.3
CMLY801-4	0.55	0.75	4.51	1400	63	0.92	0.78	1.7	3.5	20	0.001400	9.8
CMLY802-4	0.75	1	5.2	1400	65	0.92	0.78	1.7	3.7	25	0.001600	10.5
CMLY90S-4	1.1	1.5	8.85	1410	70	0.95	0.80	1.7	4	30	0.002830	13.6
CMLY90L-4	1.5	2	9.51	1410	71	0.95	0.80	1.7	4.6	40	0.003590	16.8
CMLY100L1-4	2.2	3	14.0	1420	79	0.85	0.82	1.9	4.8	50	0.00540	20.0
CMLY100L2-4	3	4	16.7	1420	79	0.98	0.83	1.9	4.8	60	0.00670	21.5

CMLL Single phase motors with capacitor start - capacitor run

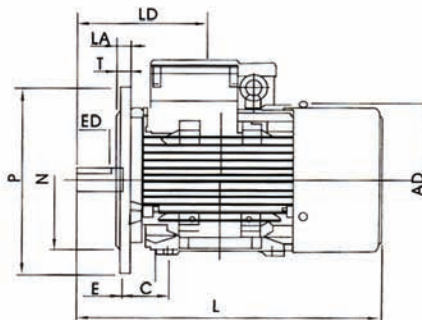
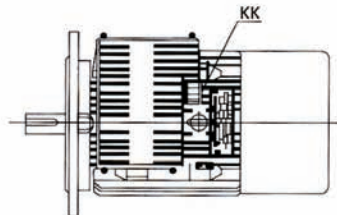
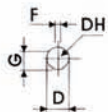
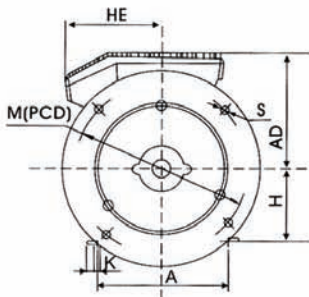
Type	Output		Current (A)	Speed rev/min	Efficiency n% 100%	Power Factor Cos 10%	Ts Tn	Tmax Tn	Is In	Moment (J) kgm ²	Weight mass/kg
	kW	hp									
CMLL711-2	0.37	0.50	2.73	2760	69	0.92	1.8	1.8	5.8	0.000610	6.5
CMLL712-2	0.55	0.75	3.88	2780	72	0.92	1.8	1.8	5.4	0.000720	7.2
CMLL801-2	0.75	1	5.15	2800	75	0.92	1.8	1.7	5.7	0.000970	8.5
CMLL802-2	1.1	1.5	7.02	2800	78	0.95	1.8	1.7	5.6	0.001100	9.5
CMLL90S-2	1.5	2	9.40	2800	78	0.95	1.7	1.7	6.0	0.002960	13.2
CMLL90L-2	2.2	3	13.70	2800	82	0.95	1.7	1.7	6.2	0.003240	14.5
CMLL100L1-2	3.0	4	18.40	2820	83	0.95	1.7	1.7	6.4	0.003930	21.0
CMLL711-4	0.25	0.37	1.99	1360	65	0.92	1.8	1.8	6.0	0.000910	6.7
CMLL712-4	0.37	0.55	2.81	1370	67	0.92	1.8	1.8	5.7	0.000100	7.4
CMLL801-4	0.55	0.75	4.00	1400	70	0.92	1.8	1.7	5.4	0.001700	8.8
CMLL802-4	0.75	1.0	5.30	1400	71	0.92	1.8	1.7	5.5	0.001960	10.0
CMLL90S-4	1.1	1.5	7.20	1400	76	0.95	1.7	1.7	5.7	0.003050	13.5
CMLL90L-4	1.5	2	9.57	1400	78	0.95	1.7	1.7	6.0	0.003890	16.6
CMLL100L1-4	2.2	3	13.85	1410	80	0.95	1.7	1.7	6.1	0.005100	24.0
CMLL100L1-4	3	4	18.17	1420	83	0.95	1.7	1.7	6.4	0.006300	28.2

Mounting and Overall Dimensions

IM B3 frame size 56 to 100



IM B5/V1 frame size 56 to 100

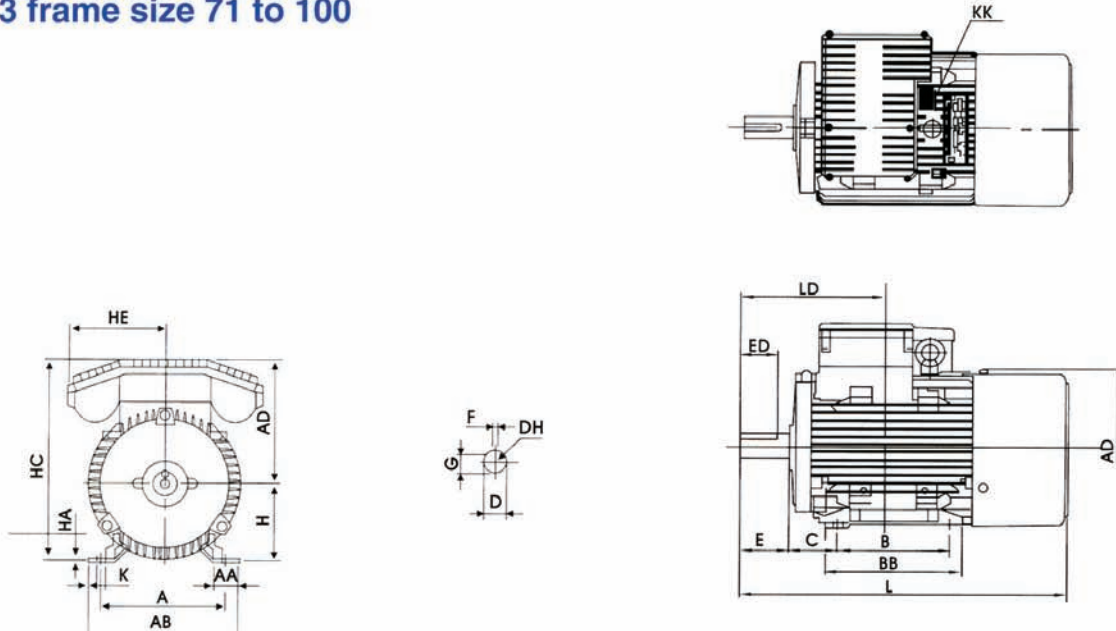


CMLY Single phase motors with permanent capacitors

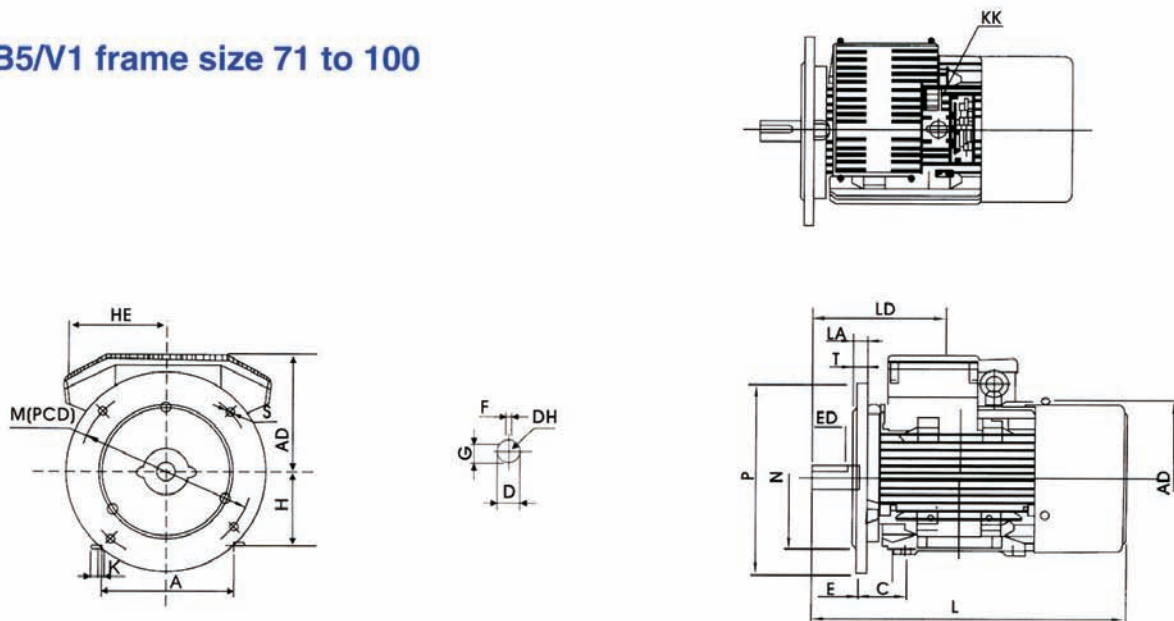
Frame	A	AA	AB	AC	AD	B	BB	C	D	DH	E	F	G	H	K	KK	L	M	N	P	S	T
56 63	100	24	135	130	115	80	115	40	11	M4 X 12	23	4	8.5	63	7	1-M20 X 1.5	217	115	95	140	10	3.0
71	112	26	150	145	120	90	125	45	14	M5 X 12	30	5	11.0	71	7	1-M20 X 1.5	245	130	130	160	10	3.5
80	125	35	165	175	145	100	135	50	19	M6 X 16	40	6	15.5	80	10	1-M25 X 1.5	300	165	165	200	12	3.5
90S	140	37	180	195	155	100	140	56	24	M8 X 19	50	8	20.0	90	10	1-M25 X 1.5	320	165	165	200	12	3.5
90L	140	37	180	195	155	125	165	56	24	M8 X 19	50	8	20.0	90	10	1-M25 X 1.5	350	165	165	200	12	3.5
100L	160	40	205	215	180	140	185	63	28	M10 X 22	60	8	24.0	100	12	1-M25 X 1.5	385	215	215	250	15	4.0

Mounting and Overall Dimensions

IM B3 frame size 71 to 100



IM B5/V1 frame size 71 to 100



CMLL Single phase motors with capacitor start - capacitor run

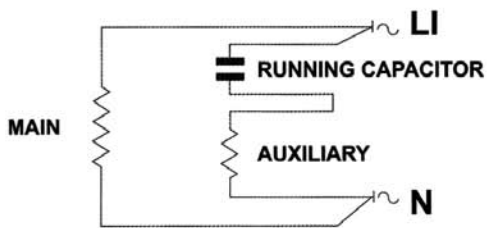
Frame	A	AA	AB	AC	AD	B	BB	C	D	DH	E	F	G	H	K	KK	L	M	N	P	S	T
71	112	26	150	145	120	90	125	45	14	M5 X 12	30	5	11.0	71	7	1-M20 X 1.5	245	130	110	160	10	3.5
80	125	35	165	175	145	100	135	50	19	M6 X 16	40	6	15.5	80	10	1-M25 X 1.5	300	165	130	200	12	3.5
90S	140	37	180	195	155	100	140	56	24	M8 X 19	50	8	20.0	90	10	1-M25 X 1.5	320	165	130	200	12	3.5
90L	140	37	180	195	155	125	165	56	24	M8 X 19	50	8	20.0	90	10	1-M25 X 1.5	350	165	130	200	12	3.5
100	160	40	205	215	180	140	185	63	28	M10 X 22	60	8	24.0	100	12	1-M25 X 1.5	385	215	180	250	15	4.0

Single Phase Connections

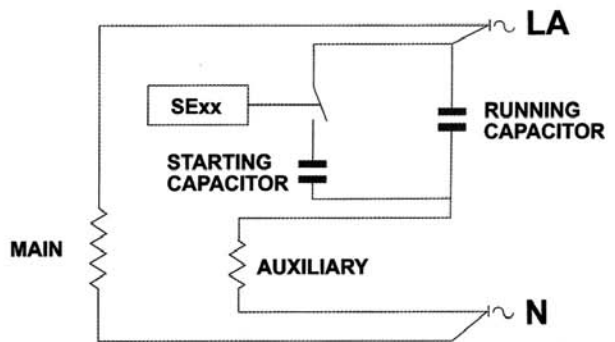
Connection

A motor's rated voltage must agree with the power supply line-to-line voltage. Care must therefore be taken to ensure the correct connection to the motor terminals.

CMLY Series



CMLL Series



SExx: electronic device for connection of starting capacitor

Shaft Mounted Speed Reducers

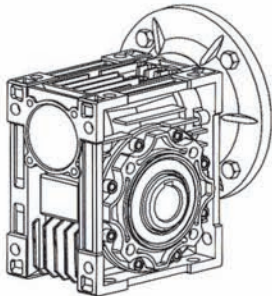
Features

- Includes complete torque arm assembly.
- Fully interchangeable with other manufacturers.
- Production line manufacturing guarantees tolerances and consistent quality.
- Gears produced on German manufactured hobbing centres to achieve the highest quality helical gear components.
 - Pinions; 8620 steel
 - Gears; 20MnCr5 steel
- All gears are ground.
- Final heat treatment includes gas carburising to a depth of 1mm then grinding to DIN class 6.
- Casting crack tested.
- All units test run for 30 minutes prior to final quality control checks.
- Full traceability guaranteed with unique Challenge serial number.
- Backstops also available.
- Held ex-stock in most Challenge warehouse locations.



Worm Gear Units

Versions



CMRV 025-150

The service factor (f.s.) depends on the operating conditions the reduction unit is subjected to.
The parameters that need to be taken into consideration to select the most adequate service factor correctly comprise:

- type of load of the operated machine : A - B - C
- length of daily operating time: hours/day (Δ)
- start-up frequency: starts/hour (*)

TYPE OF LOAD: A - uniform $fa \leq 0.3$
 B - moderate shocks $fa \leq 3$
 C - heavy shocks $fa \leq 10$

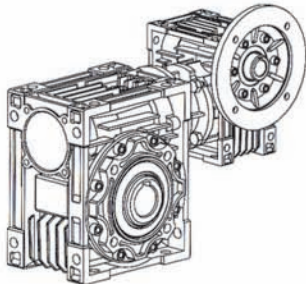
$fa = Je/Jm$

- Je (kgm²) moment of reduced external inertia at the drive-shaft
- Jm (kgm²) moment of inertia of motor If $fa > 10$ call our Technical Service.

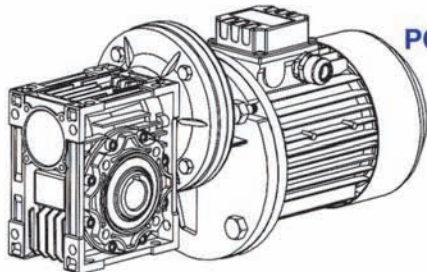
A - Screw feeders for light materials, fans, assembly lines, conveyor belts for light materials, small mixers, lifts, cleaning machines, fillers, control machines.

B - Winding devices, woodworking machine feeders, goods lifts, balancers, threading machines, medium mixers, conveyor belts for heavy materials, winches, sliding doors, fertilizer scrapers, packing machines, concrete mixers, crane mechanisms, milling cutters, folding machines, gear pumps.

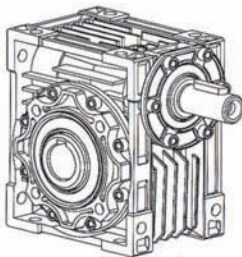
C - Mixers for heavy materials, shears, presses, centrifuges, rotating supports, winches and lifts for heavy materials, grinding lathes, stone mills, bucket elevators, drilling machines, hammer mills, cam presses, folding machines, turntables, tumbling barrels, vibrators, shredders.



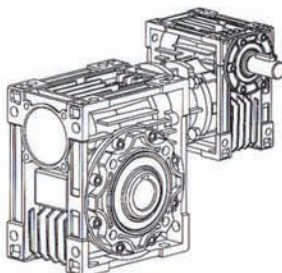
CMRV-CMRV...



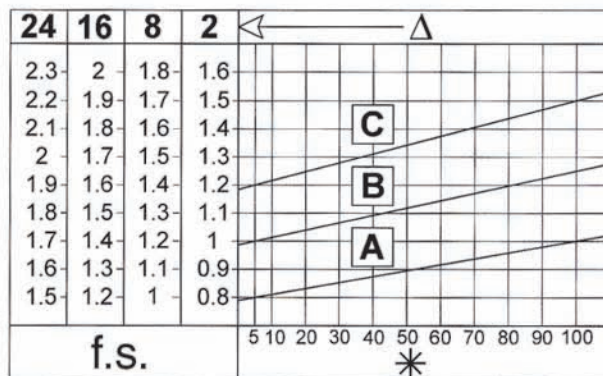
PC-CMRV...



CRV 030-150



CRV-CMRV...



Direction of Rotation



The helix is right-handed

Critical Applications

The performance given in the catalogue correspond to mounting position B3 or similar, ie. when the first stage is not entirely immersed in oil. For other mounting positions and/or particular input speeds, refer to the tables that highlight different critical situations for each size of reduction unit.

It is also necessary to take due consideration of and carefully assess the following applications by calling our Technical Service:

- As a speed increasing.
- Use in services that could be hazardous for people if the reduction unit fails.
- Applications with especially high inertia.
- Use as a lifting winch.
- Applications with high dynamic strain on the case of the reduction unit.
- In places with T° under -5°C or over 40°C.
- Use in chemically aggressive environments.

- Use in a salty environment.
- Mounting positions not envisaged in the catalogue.
- Use in radioactive environments.
- Use in environments pressures other than atmospheric pressure.

Avoid applications where even partial immersion of the reduction unit is required.

The maximum torque (*) that the gear reducer can support must not exceed two times the nominal torque (f.s.=1) stated in the performance tables.

(*) intended for momentary overloads due to starting at full load, braking, shocks or other causes, particularly those that are dynamic.

CRMV	025	030	040	050	063	075	090	110	130	150
V5: 1500 < n1 < 3000	-	-	-	-	-	B	B	B	B	B
n1 > 3000	B	B	B	B	B	A	A	A	A	A
V6	B	B	B	B	B	B	B	B	B	B

A = Application not recommended

B = Check the application or call technical department

Installation and Lubrication

To install the reduction unit it is necessary to note the following recommendations:

- The mounting on the machine must be stable to avoid any vibration.
- Check the correct direction of rotation of the reduction unit output shaft before fitting the unit to the machine.
- In the case of particularly lengthy periods of storage (4/6 months), if the oil seal is not immersed in the lubricant inside the unit, it is recommended to change it since the rubber could stick to the shaft or may even have lost the elasticity it needs to function properly.
- Whenever possible, protect the reduction unit against solar radiation and bad weather.
- Ensure the motor cools correctly by assuring good passage of air from the fan side.
- In the case of ambient temperatures $< -5^{\circ}\text{C}$ or $> +40^{\circ}\text{C}$ call the Technical Service.
- The various parts (pulleys, gear wheels, couplings, shafts, etc.) must be mounted on the solid or hollow shafts using special threaded holes or other systems that anyhow ensure correct operation without risking damage to the bearings or external parts of the units. Lubricate the surfaces in contact to avoid seizure or oxidation.
- Painting must definitely not go over rubber parts and the holes on the breather plugs, if any.
- For units equipped with oil plugs, replace the closed plug used for shipping with the special breather plug.
- Check the correct level of the lubricant through the indicator, if there is one.
- Starting must take place gradually, without immediately applying the maximum load.
- When there are parts, objects or materials under the motor drive that can be damaged by even limited spillage of oil, special protection should be fitted.
- The reduction units size 025-030-040-050-063-075-090 are supplied complete with lubricant for life, synthetic oil, and can therefore be mounted in any position envisaged in the catalogue. The only exceptions are CMRV090- and CRV075-090- in position. V5/V6 for which you should call our Technical Service to assess the conditions of use.
- The reduction units size 110, 130 and 150 are supplied complete with lubricant, mineral oil.
- For sizes 110, 130 and 150 it is necessary to specify the position, otherwise the reduction units are supplied with the quantity of oil relating to position B3, (breather supplied).
- Only reduction units 110, 130 and 150 are fitted with breather, level and oil drainage plugs. It is necessary, after installation, to replace the closed plug used for transportation with the breather plug supplied with the unit.
- The pre-stage helical modules are supplied complete with life-long lubricant, synthetic oil and can therefore be mounted in all the positions. Lubrication is separated from that of the worm reduction unit.

Lubrication

In cases of ambient temperatures not envisaged in the table, call our Technical Service.

In the case of temperatures under -30°C or over 60°C it is necessary to use oil seals with special properties.

For operating ranges with temperatures under 0°C it is necessary to consider the following:

- 1- The motors need to be suitable for operation at the envisaged ambient temperature.

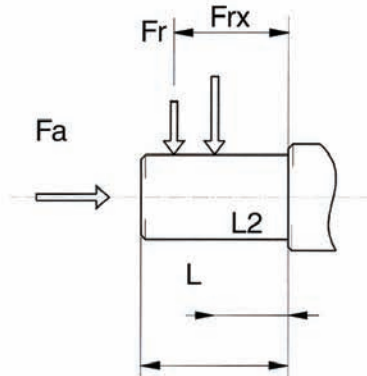
- 2- The power of the electric motor needs to be adequate for exceeding the higher starting torques required.
- 3- In the case of reduction units with a cast-iron case, pay attention to impact loads since cast iron may have problems of fragility at temperatures under -15°C .
- 4- During the early stages of service, problems of lubrication may arise due to the high level of viscosity taken on by the oil and so it is wise to have a few minutes of rotation under no load.

The oil needs to be changed after approximately 10,000 hours. This period depends on the type of service and the environment where the reduction unit works.

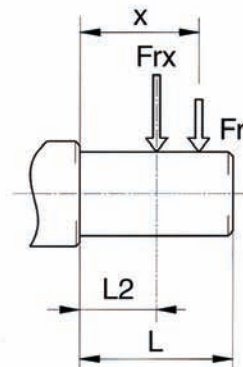
	T°C - ISO...	AGIP	SHELL	ESSO	MOBIL	CASTROL	BP
CMRV025-090 PC063-090 (synthetic oil)	-25) - (+50) ISO VG320	Telium VSF320	Tivela oil S320	S220	Glygoyle 30	Alphasyn PG32	Energol SG-XP320
CMRV110-150 (mineral oil)	-5) - (+40) ISO VG460	Blasia 460	Omala oil 460	Spartan EP460	Mobilgear 634	Alphamax 460	Energol GR-XP460
	-15) - (+25) ISO VG220	Blasia 220	Omala oil 220	Spartan EP220	Mobilgear 630	Alphamax 220	Energol GR-XP220

CMRV	025	030	040	050	063	075	090	110	130	150	PC	063	071	080	090
B3								3	4.5	7					
B8								2.2	3.3	5.1					
B6-B7	0.02	0.04	0.08	0.15	0.3	0.55	1	2.5	3.5	5.4		0.05	0.07	0.15	0.16
V5								3	4.5	7					
V6								2.2	3.3	5.1					

Radial Loads



CRMV	025	030	040	050	063	075	090	110	130	150
a	50	65	84	101	120	131	162	176	188	215
b	38	50	64	76	95	101	122	136	148	174
Fr2 max	1350	1830	3490	4840	6270	7380	8180	12000	13500	18000



CRMV	030	040	050	063	075	090	110	130	150
a	86	106	129	159	192	227	266	314	350
b	76	94,5	114	139	176	202	236	274	310
Fr2 max	210	350	490	700	980	1270	1700	2100	2800

The radial load on the shaft is calculated with the following formula:

- Fre (N) Resulting radial load
- M (Nm) Torque on the shaft
- D (mm) Diameter of the transmission member mounted on the shaft
- Fr (N) Value of the maximum permitted radial load (see relative tables)

- fz = 1.1 gear pinion
- 1.4 chain wheel
- 1.7 v-pulley
- 2.5 flat pulley

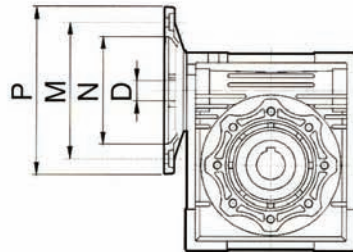
When the resulting radial load is not applied on the centre line of the shaft it is necessary to calculate the effective load with the following formula:

a , b , x = (see relative tables)

$$Fre = \frac{2000 \times M \times fz}{D} \leq Fr1 \text{ to } Fr2$$

$$Fre \leq \frac{Fr \times a}{(b + x)} \leq Fr1max \text{ to } Fr2max$$

Possible Motor Flanges

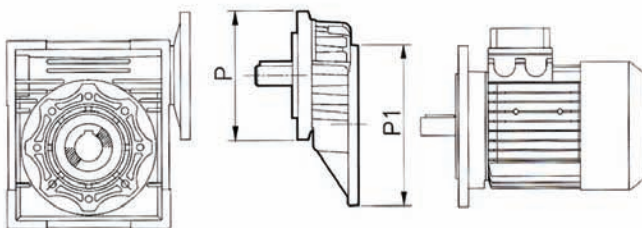


CMRV	PAM IEC	N	M	P	D											
					5	7,5	10	15	20	25	30	40	50	60	80	100
025	56B14	50	65	80	9	9	9	9	9	-	9	9	9	9	-	-
	63B5	95	115	140	11	11	11	11	11	11	11	11	11	-	-	-
030	63B14	60	75	90	-	-	-	-	-	-	-	-	-	-	-	-
	56B5	80	100	120	9	9	9	9	9	9	9	9	9	9	9	-
	56B14	50	65	80	-	-	-	-	-	-	-	-	-	-	-	-
040	71B5	110	130	160	14	14	14	14	14	14	14	14	-	-	-	-
	71B14	70	85	105	-	-	-	-	-	-	-	-	-	-	-	-
	63B5	95	115	140	11	11	11	11	11	11	11	11	11	11	11	11
	63B14	60	75	90	-	-	-	-	-	-	-	-	-	-	-	-
	56B5	80	100	120	-	-	-	-	-	-	-	-	9	9	9	9
050	80B5	130	165	200	19	19	19	19	19	19	19	-	-	-	-	-
	80B14	80	100	120	-	-	-	-	-	-	-	-	-	-	-	-
	71B5	110	130	160	14	14	14	14	14	14	14	14	14	14	14	-
	71B14	70	85	105	-	-	-	-	-	-	-	-	-	-	-	-
063	63B5	95	115	140	-	-	-	-	-	-	-	11	11	11	11	11
	90B5	130	165	200	-	24	24	24	24	24	24	-	-	-	-	-
	90B14	95	115	140	-	-	-	-	-	-	-	-	-	-	-	-
	80B5	130	165	200	-	19	19	19	19	19	19	19	19	19	-	-
	80B14	80	100	120	-	-	-	-	-	-	-	14	14	14	14	14
	71B5	110	130	160	-	-	-	-	-	-	-	-	-	-	-	-
075	71B14	70	85	105	-	-	-	-	-	-	-	-	-	-	-	-
	100/112B5	180	215	250	-	28	28	28	-	-	-	-	-	-	-	-
	100/112B14	110	130	160	-	-	-	-	-	-	-	-	-	-	-	-
	90B5	130	165	200	-	24	24	24	24	24	24	24	-	-	-	-
	90B14	95	115	140	-	-	-	-	-	-	-	-	-	-	-	-
	80B5	130	165	200	-	-	-	-	19	19	19	19	19	19	19	19
	80B14	80	100	120	-	-	-	-	-	-	-	-	14	14	14	14
090	71B5	110	130	160	-	-	-	-	-	-	-	-	14	14	14	14
	100/112B5	180	215	250	-	28	28	28	28	28	28	-	-	-	-	-
	100/112B14	110	130	160	-	-	-	-	-	-	-	-	-	-	-	-
	90B5	130	165	200	-	24	24	24	24	24	24	24	24	24	-	-
	90B14	95	115	140	-	-	-	-	-	-	-	-	-	-	-	-
	80B5	130	165	200	-	-	-	-	-	-	-	19	19	19	19	19
110	80B14	80	100	120	-	-	-	-	-	-	-	-	-	-	-	-
	132B5	230	265	300	-	38*	38*	38*	38*	-	-	-	-	-	-	-
	100/112B5	180	215	250	-	28	28	28	28	28	28	28	28	28	-	-
	90B5	130	165	200	-	-	-	-	-	24	24	24	24	24	24	24
	80B5	130	165	200	-	-	-	-	-	-	-	-	-	-	19	19
130	132B5	230	265	300	-	38*	38*	38*	38*	38*	38*	38*	-	-	-	-
	100/112B5	180	215	250	-	-	-	-	-	28	28	28	28	28	28	28
	90B5	130	165	200	-	-	-	-	-	-	-	-	-	-	24	24
150	160B5	250	300	350	-	42	42	42	42	42	-	-	-	-	-	-
	132B5	230	265	300	-	-	-	-	38	38	38	38	38	38	-	-
	100/112B5	180	215	250	-	-	-	-	-	-	-	-	28	28	28	28

* Low profile key supplied by Challenge

PC & CMRV Combinations

.CMRV	i	PC 063		PC 071		PC 080			PC 090		
		105 / 11 i = 3	105 / 14 i = 3	120 / 14 i = 3	120 / 19 i = 3	160 / 19 i = 3	160 / 24 i = 3	160 / 28 i = 3	160 / 19 i = 2,42	160 / 24 i = 2,42	160 / 28 i = 2,42
040	25										
	30										
	40										
	50										
	60										
	80										
100											
050	25										
	30										
	40										
	50										
	60										
	80										
100											
063	25										
	30										
	40										
	50										
	60										
	80										
100											
075	25										
	30										
	40										
	50										
	60										
	80										
100											
090	25										
	30										
	40										
	50										
	60										
	80										
100											
110	25										
	30										
	40										
	50										
	60										
	80										
100											
130	25										
	30										
	40										
	50										
	60										
	80										
100											



	P1	P	(P)
PC 063	63B5-140 / 11		
PC 071	71B5-160 / 14	120 / 14	(120 / 19)
PC 080	80B5-200 / 19	160 / 14	(160 / 24) (160 / 28)
PC 090	90B5-200 / 24	160 / 24	(160 / 19) (160 / 128)

(..) Only on request

Efficiency

Efficiency

Efficiency is a parameter which has a major influence on the sizing of certain applications, and basically depends on gear pair design elements.

The mesh data table on page 321 shows dynamic efficiency ($n_1=1400$ rev/min) and static efficiency values. Remember that these values are only achieved after the unit has been run in.

Dynamic Irreversibility

Dynamic irreversibility is achieved when the output shaft stops instantly when drive is no longer transmitted through the worm shaft. This condition requires a dynamic efficiency of $\eta_d < 0.5$.

Static Irreversibility

Static irreversibility is achieved when, with the gear reducer at a standstill, the application of a load to the output shaft does not set in motion the worm shaft. This condition requires a static efficiency of $\eta_s < 0.5$.

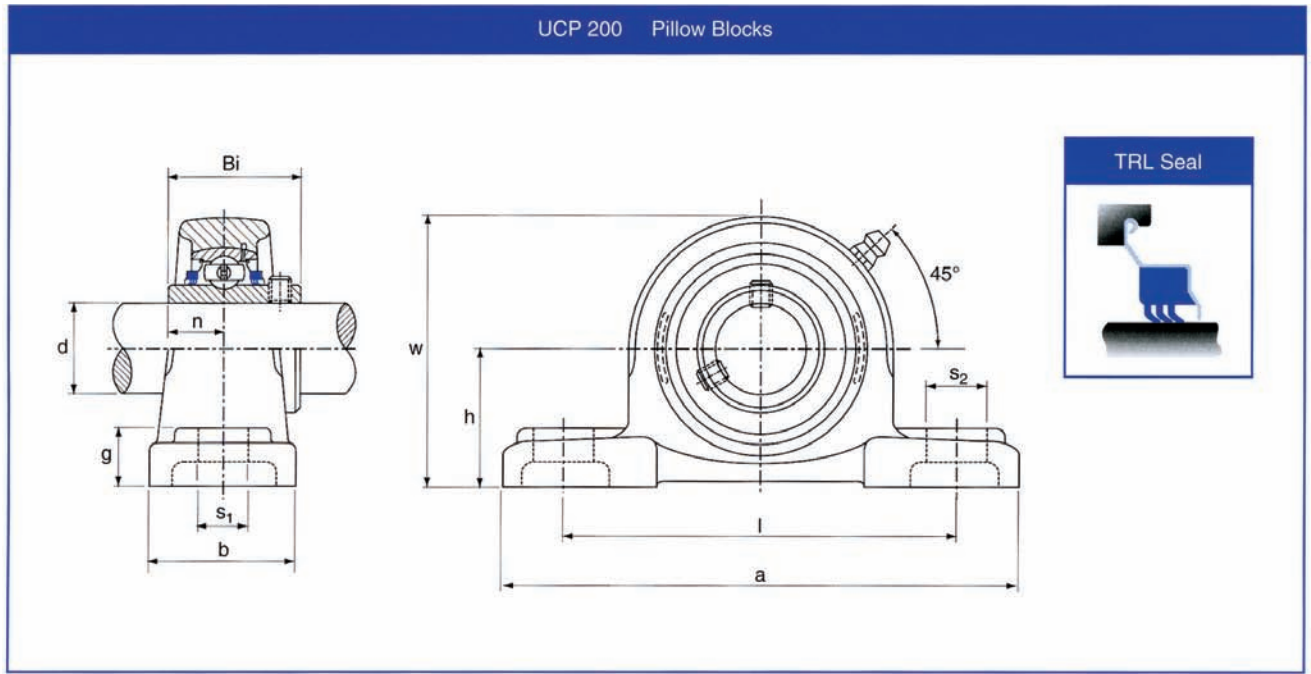
The table shows approximate irreversibility classes. Vibrations and shocks can affect a gear reducer's irreversibility. For the irreversibility conditions of a combined geared unit one must consider that the efficiency of the group is given by the product of the efficiencies of each single reducer, i.e.: $\eta_{tot} = \eta_1 \times \eta_2$

η_d	DYNAMIC IRREVERSIBILITY
> 0.6	Dynamic reversibility
0.5 to 0.6	Low dynamic reversibility
0.4 to 0.5	Good dynamic irreversibility
< 0.4	Dynamic irreversibility

η_s	STATIC IRREVERSIBILITY
> 0.55	Static reversibility
0.5 to 0.55	Low static reversibility
< 0.5	Static irreversibility

Bearing Units

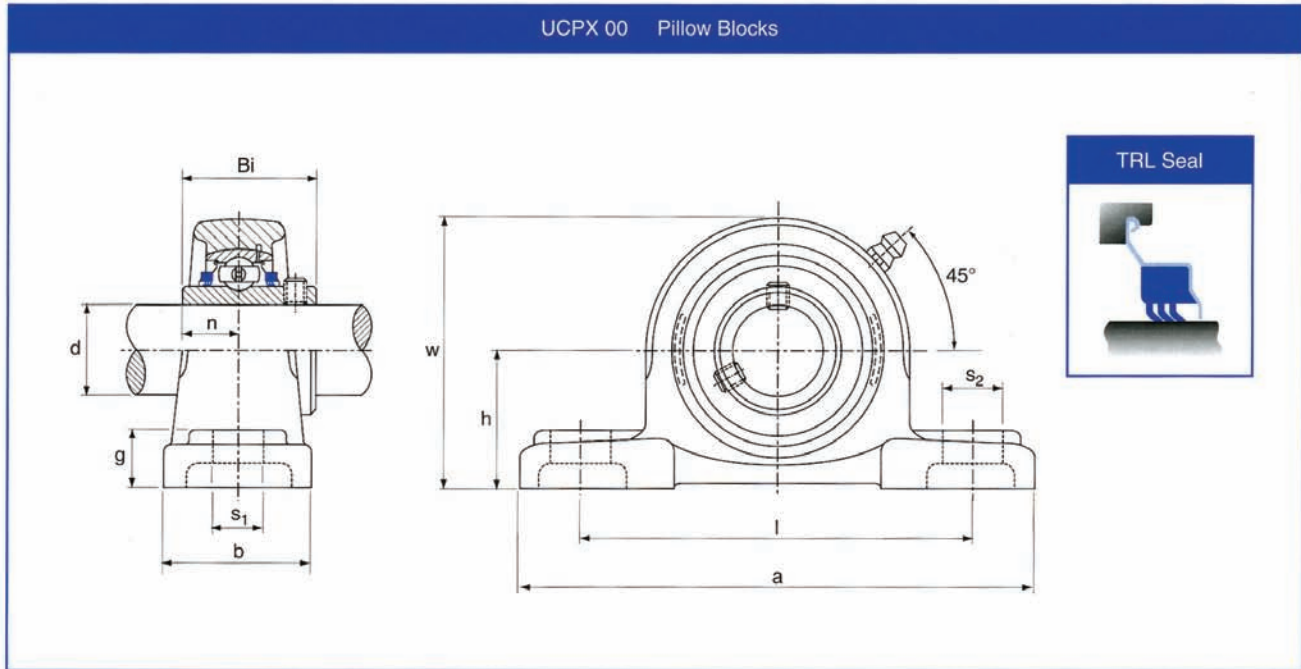
Pillow Blocks



UCP 200 Pillow Blocks (Normal Duty)

Bearing Unit	Shaft Dia.		h	a	l	b	s ₂	s ₁	g	w	Bi	n	Bolt Size		Insert No.	Housing No.	Mass kg
	d inch	d mm											inch	mm			
UCP 204	3/4"	20	33.3	127	96	38	19	13	15	65	31.0	12.7	3/8	M10	UC 204	P204	0.65
UCP 204-12																	
UCP 205	1"	25	36.5	140	105	38	19	13	16	70	34.0	14.3	3/8	M10	UC 205	P205	0.79
UCP 205-16																	
UCP 206	1.1/8"	30	42.9	165	121	48	21	17	18	83	38.1	15.9	1/2	M14	UC 206	P206	0.79
UCP 206-18																	
UCP 207	1.1/4"	35	47.6	167	126	48	21	17	19	92	42.9	17.5	1/2	M14	UC 207	P207	1.60
UCP 207-20																	
UCP 207-22	1.3/8"																
UCP 208	1.1/2"	40	49.2	184	136	54	21	17	19	98	49.2	19.0	1/2	M14	UC 208	P208	2.00
UCP 208-24																	
UCP 209	1.3/4"	45	54.0	190	146	54	21	17	20	106	49.2	19.0	1/2	M14	UC 209	P209	2.20
UCP 209-28																	
UCP 210	2"	50	57.2	206	159	60	25	20	22	112	51.6	19.0	5/8	M16	UC 210	P210	2.80
UCP 210-32																	
UCP 211	2"	55	63.5	219	171	60	25	20	22	126	55.6	22.2	5/8	M16	UC 211	P211	3.40
UCP 211-32																	
UCP 212	2.1/4"	60	69.8	241	184	70	25	20	25	137	65.1	25.4	5/8	M16	UC 212	P212	4.80
UCP 212-36																	
UCP 213	2.1/2"	65	76.2	265	203	70	29	25	27	150	65.1	25.4	3/4	M20	UC 213	P213	5.70
UCP 213-40																	
UCP 214	2.3/4"	70	79.4	266	210	72	31	25	27	156	74.6	30.2	3/4	M20	UC 214	P214	7.00
UCP 214-44																	
UCP 215	3"	75	82.6	275	217	74	31	25	28	163	77.8	33.3	3/4	M20	UC 215	P215	7.60
UCP 215-48																	
UCP 216		80	88.9	292	232	78	31	25	30	175	82.6	33.3		M20	UC 216	P216	9.00

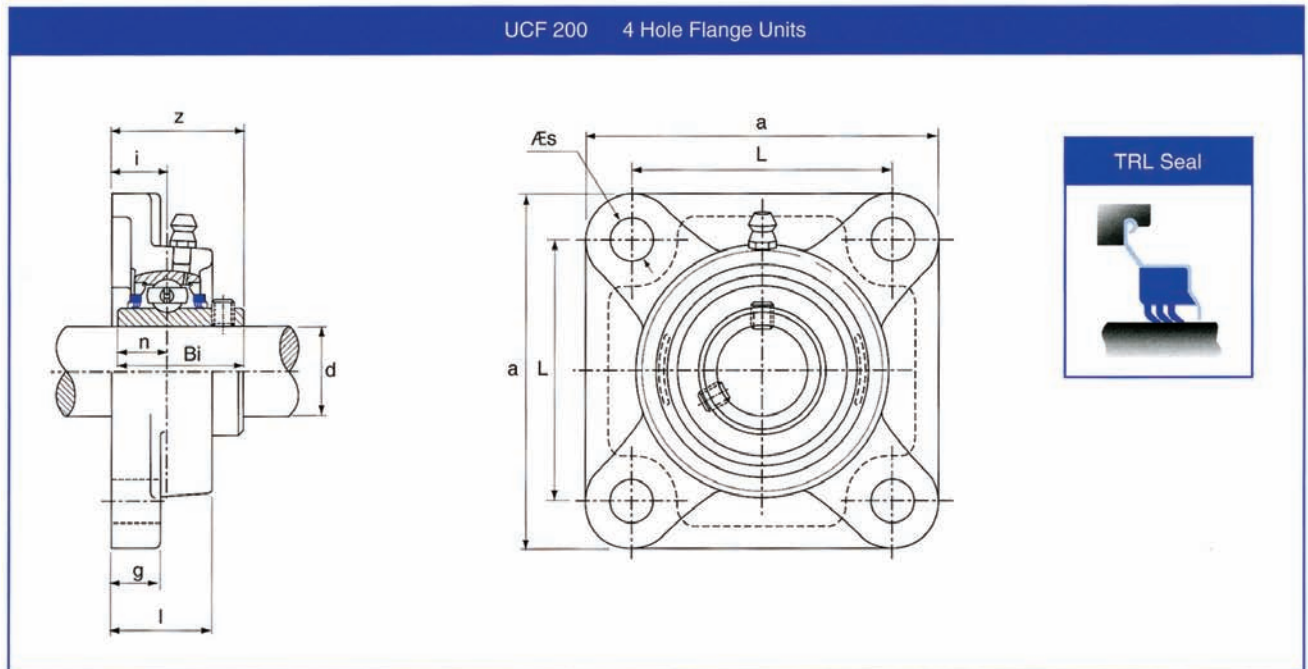
Pillow Blocks



UCPX 00 Pillow Block (Medium Duty)

Bearing Unit	Shaft Dia.		h	a	l	b	s ₂	s ₁	g	w	Bi	n	Bolt Size		Insert No.	Housing No.	Mass kg
	d inch	d mm											inch	mm			
UCPX 05 UCPX 05-16	1"	25	44.4	159	119	51	25	17	18	85	38.1	15.9	1/2"	M14	UCX 05 UCX 05-16	PX 05	1.50
UCPX 06 UCPX 06-20	1.1/4"	30	47.6	175	127	57	25	17	20	94	42.9	17.5	1/2"	M14	UCX 06 UCX 06-20	PX 06	2.00
UCPX 07 UCPX 07-20 UCPX 07-22	1.1/4" 1.3/8"	35	54.0	203	144	57	30	17	22	105	49.2	19.0	1/2"	M14	UCX 07 UCX 07-20 UCX 07-22	PX 07	2.70
UCPX 08 UCPX 08-24	1.1/2"	40	58.7	222	156	67	32	20	26	113	49.2	19.0	5/8"	M16	UCX 08 UCX 08-24	PX 08	3.50
UCPX 09 UCPX 09-28	1.3/4"	45	58.7	222	156	67	33	20	26	116	51.6	19.0	5/8"	M16	UCX 09 UCX 09-28	PX 09	3.60
UCPX 10 UCPX 10-32	2"	50	63.5	241	171	73	36	20	27	126	55.6	22.2	5/8"	M16	UCX 10 UCX 10-32	PX 10	4.40
UCPX 11 UCPX 11-36	2.1/4"	55	69.8	260	184	79	36	25	30	139	65.1	25.4	3/4"	M20	UCX 11 UCX 11-36	PX 11	6.30
UCPX 12 UCPX 12-36	2.1/4"	60	76.2	286	203	83	41	25	32	152	65.1	25.4	3/4"	M20	UCX 12 UCX 12-36	PX 12	7.40
UCPX 13 UCPX 13-40	2.1/2"	65	76.2	286	203	83	41	25	32	154	74.6	30.2	3/4"	M20	UCX 13 UCX 13-40	PX 13	7.70
UCPX 14 UCPX 14-44	2.3/4"	70	88.9	330	229	89	51	27	35	171	77.8	33.3	7/8"	M22	UCX 14 UCX 14-44	PX 14	10.60
UCPX 15 UCPX 15-48	3"	75	88.9	330	229	89	51	27	35	175	82.6	33.3	7/8"	M22	UCX 15 UCX 15-48	PX 15	11.10
UCPX 16		80	101.6	381	283	102	59	27	42	195	85.7	34.1		M22	UCX 16	PX 16	16.20

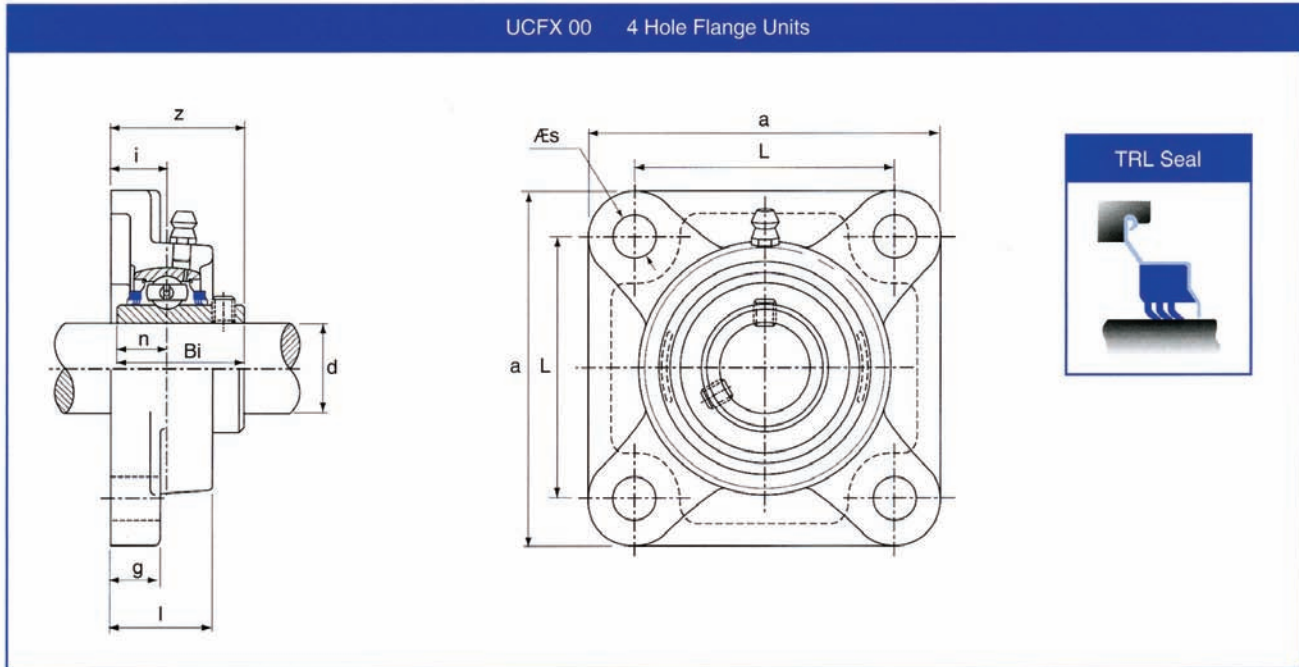
Flange Units



UCF 200 4 Hole Flange Units (Normal Duty)

Bearing Unit	Shaft Dia.		a	L	i	g	l	Øs	z	Bi	n	Bolt Size		Insert No.	Housing No.	Mass kg
	d inch	d mm										inch	mm			
UCF 204	3/4"	20	86	64	15	12	25.5	12	33.3	31.0	12.7	3/8"	M10	UC 204	F 204	0.6
UCF 204-12		20	86	64	15	12	25.5	12	33.3	31.0	12.7			UC 204-12		
UCF 205	1"	25	95	70	16	14	27	12	35.7	34.0	14.3	3/8"	M10	UC 205	F 205	0.8
UCF 205-16		25	95	70	16	14	27	12	35.7	34.0	14.3			UC 205-16		
UCF 206	1.1/8"	30	108	83	18	14	31	12	40.2	38.1	15.9	3/8"	M10	UC 206	F 206	1.1
UCF 206-18		30	108	83	18	14	31	12	40.2	38.1	15.9			UC 206-18		
UCF 207	1.1/4"	35	117	92	19	16	34	14	44.4	42.9	17.5	7/16"	M12	UC 207	F 207	1.5
UCF 207-20		35	117	92	19	16	34	14	44.4	42.9	17.5			UC 207-20		
UCF 207-22		35	117	92	19	16	34	14	44.4	42.9	17.5			UC 207-22		
UCF 208	1.1/2"	40	130	102	21	16	36	16	51.2	49.2	19.0	1/2"	M14	UC 208	F 208	1.9
UCF 208-24		40	130	102	21	16	36	16	51.2	49.2	19.0			UC 208-24		
UCF 209	1.3/4"	45	137	105	22	18	38	16	52.2	49.2	19.0	1/2"	M14	UC 209	F 209	2.3
UCF 209-28		45	137	105	22	18	38	16	52.2	49.2	19.0			UC 209-28		
UCF 210	2"	50	143	111	22	18	40	16	54.6	51.6	19.0	1/2"	M14	UC 210	F 210	2.5
UCF 210-32		50	143	111	22	18	40	16	54.6	51.6	19.0			UC 210-32		
UCF 211	2"	55	162	130	25	20	43	19	58.4	55.6	22.2	5/8"	M16	UC 211	F 211	3.4
UCF 211-32		55	162	130	25	20	43	19	58.4	55.6	22.2			UC 211-32		
UCF 212	2.1/4"	60	175	143	29	20	48	19	68.7	65.1	25.4	5/8"	M16	UC 212	F 212	4.4
UCF 212-36		60	175	143	29	20	48	19	68.7	65.1	25.4			UC 212-36		
UCF 213	2.1/2"	65	187	149	30	20	50	19	69.7	65.1	25.4	5/8"	M16	UC 213	F 213	5.3
UCF 213-40		65	187	149	30	20	50	19	69.7	65.1	25.4			UC 213-40		
UCF 214	2.3/4"	70	193	152	31	24	54	19	75.4	74.6	30.2	5/8"	M16	UC 214	F 214	6.0
UCF 214-44		70	193	152	31	24	54	19	75.4	74.6	30.2			UC 214-44		
UCF 215	3"	75	200	159	35	24	57	19	79.5	77.8	33.3	5/8"	M16	UC 215	F 215	6.6
UCF 215-48		75	200	159	35	24	57	19	79.5	77.8	33.3			UC 215-48		
UCF 216		80	208	165	35	24	59	23	84.3	82.6	33.3		M20	UC 216	F 216	7.5

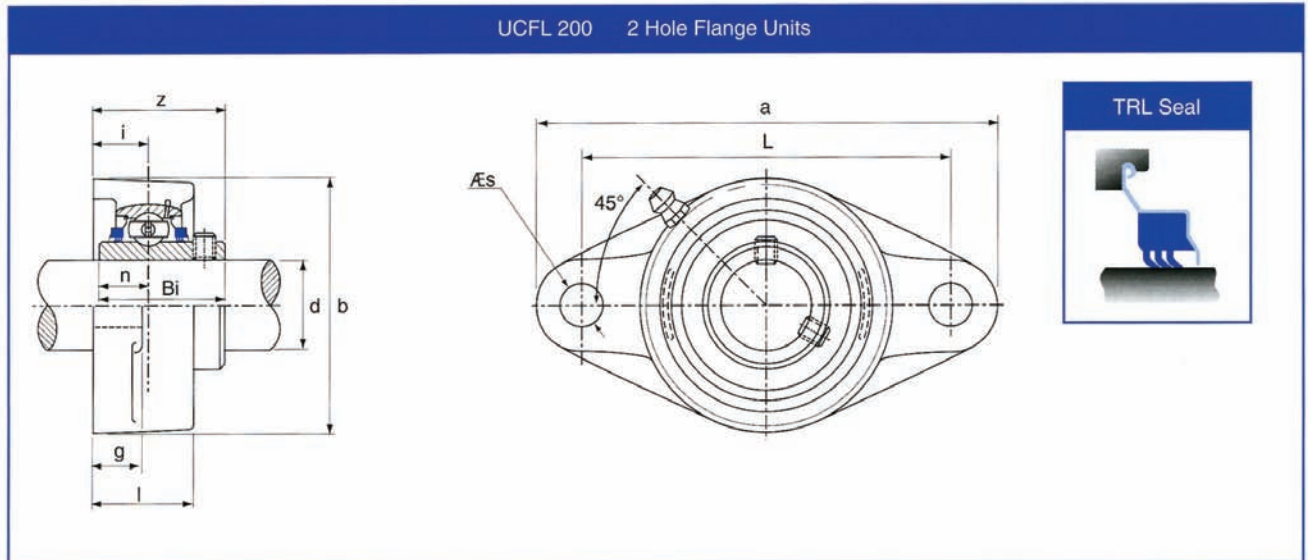
Flange Units



UCFX 00 4 Hole Flange Units (Medium Duty)

Bearing Unit	Shaft Dia.		a	L	i	g	l	Øs	z	Bi	n	Bolt Size		Insert No.	Housing No.	Mass kg
	d inch	d mm										inch	mm			
UCFX 05	1"	25	108	83	18	13	30	12	40.2	38.1	15.9	3/8"	M10	UCX 05	FX 05	1.1
UCFX 05-16														UCX 05-16		
UCFX 06	1.1/4"	30	117	92	19	14	34	16	44.4	42.9	17.5	1/2"	M14	UCX 06	FX 06	1.4
UCFX 06-20														UCX 06-20		
UCFX 07	1.1/4"	35	130	102	21	14	38	16	51.2	49.2	19.0	1/2"	M14	UCX 07	FX 07	1.9
UCFX 07-20														UCX 07-20		
UCFX 07-22	1.3/8"													UCX 07-22		
UCFX 08	1.1/2"	40	137	105	22	14	40	19	52.2	49.2	19.0	5/8"	M16	UCX 08	FX 08	2.1
UCFX 08-24														UCX 08-24		
UCFX 09	1.3/4"	45	143	111	23	14	40	19	55.6	51.6	19.0	5/8"	M16	UCX 09	FX 09	2.5
UCFX 09-28														UCX 09-28		
UCFX 10	2"	50	162	130	26	20	44	19	59.4	55.6	22.2	5/8"	M16	UCX 10	FX 10	3.6
UCFX 10-32														UCX 10-32		
UCFX 11	2.1/4"	55	175	143	29	20	49	19	68.7	65.1	25.4	5/8"	M16	UCX 11	FX 11	4.7
UCFX 11-36														UCX 11-36		
UCFX 12	2.1/4"	60	187	149	34	21	59	19	73.7	65.1	25.4	5/8"	M16	UCX 12	FX 12	5.5
UCFX 12-36														UCX 12-36		
UCFX 13	2.1/2"	65	187	149	34	21	59	19	78.4	74.6	30.2	5/8"	M16	UCX 13	FX 13	5.9
UCFX 13-40														UCX 13-40		
UCFX 14	2.3/4"	70	197	152	37	24	60	23	81.5	77.8	33.3	3/4"	M20	UCX 14	FX 14	7.3
UCFX 14-44														UCX 14-44		
UCFX 15	3"	75	197	152	40	24	68	23	89.3	82.6	33.3	3/4"	M20	UCX 15	FX 15	8.0
UCFX 15-48														UCX 15-48		
UCFX 16		80	214	171	40	24	70	23	91.6	85.7	34.1		M20	UCX 16	FX 16	9.8

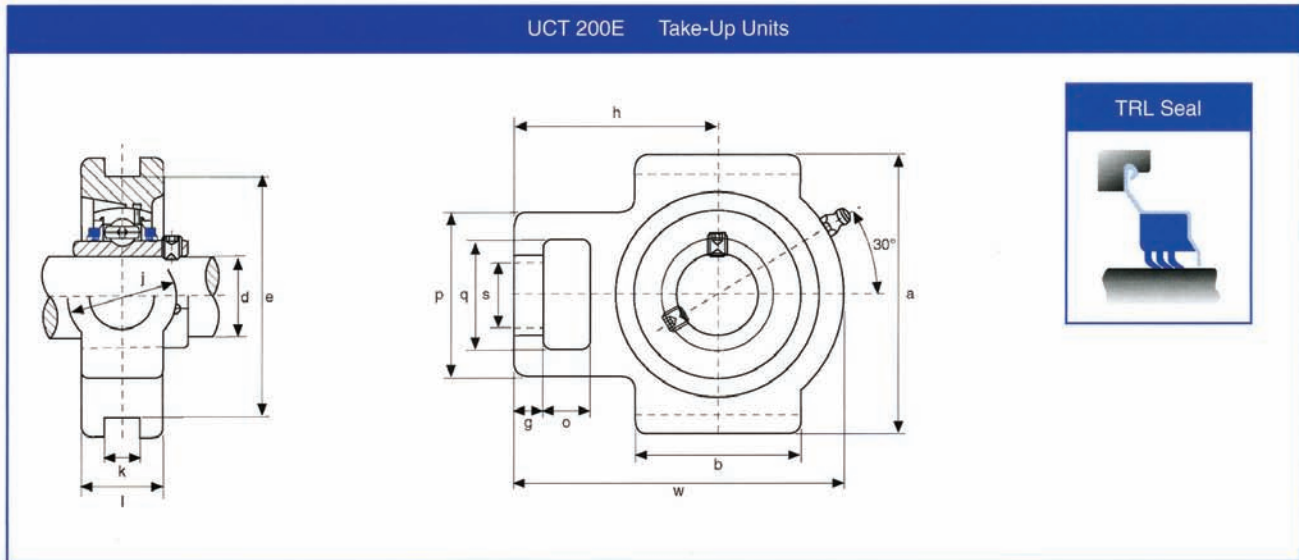
Flange Units



UCFL 200 2 Hole Flange Units (Normal Duty)

Bearing Unit	Shaft Dia.		a	L	i	g	l	Øs	b	z	Bi	n	Bolt Size		Insert No.	Housing No.	Mass kg
	d inch	d mm											inch	mm			
UCFL 204	3/4"	20	113	90	15	11	26	12	60	33.3	31.0	12.7	3/8"	M10	UC 204	FL 204	0.5
UCFL 204-12															UC 204-12		
UCFL 205	1"	25	130	99	16	13	27	16	68	35.7	34.0	14.3	1/2"	M14	UC 205	FL 205	0.6
UCFL 205-16															UC 205-16		
UCFL 206	1.1/4"	30	148	117	18	13	31	16	80	40.2	38.1	15.9	1/2"	M14	UC 206	FL 206	0.9
UCFL 206-20															UC 206-20		
UCFL 207	1.1/4"	35	161	130	19	14	34	16	90	44.4	42.9	17.5	1/2"	M14	UC 207	FL 207	1.2
UCFL 207-20															UC 207-20		
UCFL 207-22	1.3/8"														UC 207-22		
UCFL 208	1.1/2"	40	175	144	21	14	36	16	100	51.2	49.2	19.0	1/2"	M14	UC 208	FL 208	1.6
UCFL 208-24															UC 208-24		
UCFL 209	1.3/4"	45	188	148	22	15	38	19	108	52.2	49.2	19.0	5/8"	M16	UC 209	FL 209	1.9
UCFL 209-28															UC 209-28		
UCFL 210	2"	50	197	157	22	15	40	19	115	54.6	51.6	19.0	5/8"	M16	UC 210	FL 210	2.2
UCFL 210-32															UC 210-32		
UCFL 211	2"	55	224	184	25	18	43	19	130	58.4	55.6	22.2	5/8"	M16	UC 211	FL 211	3.2
UCFL 211-32															UC 211-32		
UCFL 212	2.1/4"	60	250	202	29	18	48	23	140	68.7	65.1	25.4	3/4"	M20	UC 212	FL 212	4.1
UCFL 212-36															UC 212-36		
UCFL 213	2.1/2"	65	258	210	30	20	50	23	155	69.7	65.1	25.4	3/4"	M20	UC 213	FL 213	5.1
UCFL 213-40															UC 213-40		
UCFL 214	2.3/4"	70	265	216	31	20	54	23	160	75.4	74.6	30.2	3/4"	M20	UC 214	FL 214	5.9
UCFL 214-44															UC 214-44		
UCFL 215	3"	75	275	225	35	20	57	23	165	79.5	77.8	33.3	3/4"	M20	UC 215	FL 215	6.4
UCFL 215-48															UC 215-48		

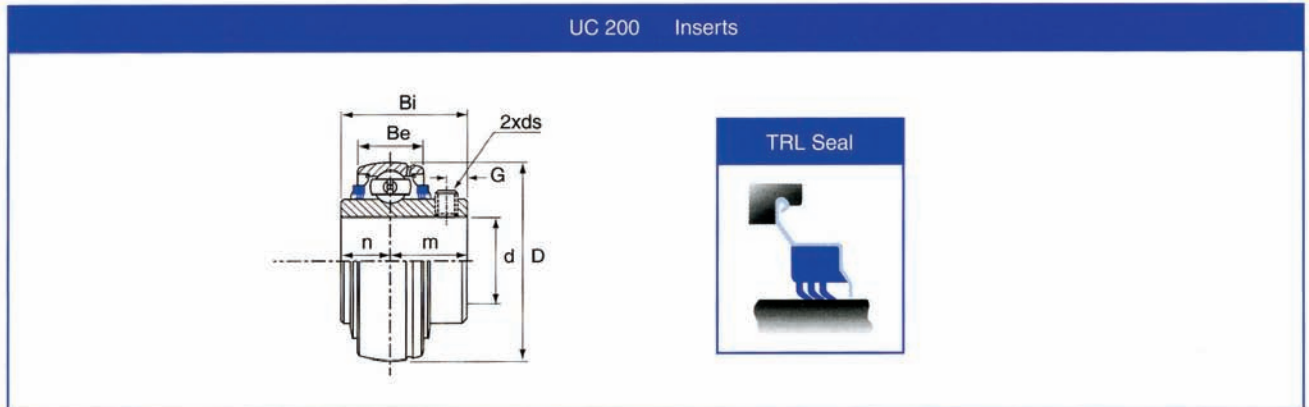
Take-Up Units



UCT 200 Take-Up Units (Normal Duty)

Bearing Unit	Shaft Dia.		o	g	p	q	∅s	b	k	e	a	w	j	l	h	Insert No.	Housing No.	Mass kg
	d inch	d																
UCT204 UCT204-12	3/4"	20	16	10	51	32	19	51	12	76	89	94	32	21	61	UC 204 UC 204-12	T204	0.74
UCT205 UCT205-16	1"	25	16	10	51	32	19	51	12	76	89	97	32	24	62	UC205 UC 205-16	T205	0.80
UCT206 UCT206-20	1.1/4"	30	16	10	56	37	22	57	12	89	102	113	37	28	70	UC 206 UC 206-20	T206	1.16
UCT207 UCT207-20 UCT207-22	1.1/4" 1.3/8"	35	16	13	64	37	22	64	12	89	102	129	37	30	78	UC 207 UC 207-20 UC 207-22	T207	1.56
UCT208 UCT208-24	1.1/2"	40	19	16	83	49	29	83	16	102	114	144	49	33	89	UC 208 UC 208-24	T208	2.32
UCT209 UCT209-28	1.3/4"	45	19	16	83	49	29	83	16	102	117	144	49	35	87	UC 209 UC 209-28	T209	2.28
UCT210 UCT210-32	2"	50	19	16	83	49	29	86	16	102	117	149	49	37	90	UC 210 UC 210-32	T210	2.44
UCT211 UCT211-32 UCT211-34	2" 2.1/8"	55	25	19	102	64	35	95	22	130	146	171	64	38	106	UC 211 UC 211-32 UC 211-34	T211	3.78
UCT212 UCT212-36	2.1/4"	60	32	19	102	64	35	102	22	130	146	194	64	42	119	UC 212 UC 212-36	T212	4.72

Inserts



UC 200 Inserts with Set Screws (Normal Duty)

Bearing Unit	Shaft Dia.		D	Bi	Be	n	m	G	ds		Load Rating (kg)		Mass kg
	d inch	d mm							inch	mm	Dynamic	Static	
UC 204	3/4"	20	47	31.0	17	12.7	18.3	4.8	1/4"-28UNF	M6X1.0	1000	630	0.16
UC 204-12		25	52	34.0	17	14.3	19.7	5.5		M6X1.0	1100	710	0.20
UC 205	1"	30	62	38.1	19	15.9	22.2	6.0	1/4"-28UNF	M6X1.0	1520	1020	0.32
UC 205-16		35	72	42.9	20	17.5	25.4	6.5		M8X1.0	2010	1390	0.48
UC 206	1.1/4"	40	80	49.2	21	19.0	30.2	8.0	5/16"-24UNF	M8X1.0	2560	1810	0.64
UC 206-20		45	85	49.2	22	19.0	30.2	8.0		M8X1.0	2560	1810	0.68
UC 207	1.1/4"	50	90	51.6	24	19.0	32.6	10.0	5/16"-24UNF	M10X1.0	2750	2020	0.82
UC 207-20		55	100	55.6	25	22.2	33.4	10.0		M10X1.0	3400	2550	1.11
UC 207-22	1.3/8"	60	110	65.1	27	25.4	39.7	10.0	3/8"-24UNF	M10X1.0	4100	3150	1.26
UC 208		65	120	65.1	28	25.4	39.7	10.0		M10X1.0	4480	3470	1.86
UC 208-24	1.1/2"	70	125	74.6	30	30.2	44.4	12.0	3/8"-24UNF	M10X1.0	4870	3810	1.94
UC 209		75	130	77.8	30	33.3	44.5	12.0		M12X1.5	5190	4190	2.06
UC 209-28	1.3/4"	80	140	82.6	33	33.3	49.3	14.0	7/16"-20UNF	M12X1.5	5700	4550	2.12
UC 210		85	150	87.6	33	33.3	49.3	14.0		M12X1.5	5700	4550	2.21
UC 210-32	2"	90	160	96.0	37	39.7	56.3	14.0	7/16"-20UNF	M12X1.5	7500	6170	2.79
UC 211		95	170	106.0	37	39.7	56.3	14.0		M12X1.5	7500	6170	4.46
UC 211-32	2"	100	180	115.0	41	44.5	63.5	14.0	1/2"-20UNF	M12X1.5	7500	6170	4.46
UC 212		105	190	125.0	41	44.5	63.5	14.0		M12X1.5	7500	6170	4.46
UC 212-36	2.1/4"	110	200	134.0	45	47.6	70.7	14.0	1/2"-20UNF	M12X1.5	7500	6170	4.46
UC 213		115	210	144.0	45	47.6	70.7	14.0		M12X1.5	7500	6170	4.46
UC 213-40	2.1/2"	120	220	153.0	49	50.8	77.9	14.0	7/16"-20UNF	M12X1.5	7500	6170	4.46
UC 214		125	230	163.0	49	50.8	77.9	14.0		M12X1.5	7500	6170	4.46
UC 214-44	2.3/4"	130	240	172.0	53	54.0	85.1	14.0	7/16"-20UNF	M12X1.5	7500	6170	4.46
UC 215		135	250	182.0	53	54.0	85.1	14.0		M12X1.5	7500	6170	4.46
UC 215-48	3"	140	260	191.0	57	57.1	92.3	14.0	7/16"-20UNF	M12X1.5	7500	6170	4.46
UC 216		145	270	201.0	57	57.1	92.3	14.0		M12X1.5	7500	6170	4.46
UC 216-56	3.1/2"	150	280	210.0	61	60.3	99.5	14.0	1/2"-20UNF	M12X1.5	7500	6170	4.46
UC 218-56		155	290	220.0	61	60.3	99.5	14.0		M12X1.5	7500	6170	4.46

Bearing Speeds

The maximum rotational speed of a grease lubricated ball bearing is related to the fit between shaft and bearing.

Under normal operating conditions the fit between the bearing and shaft should be h7. The maximum permissible bearing speeds are shown on the right.

A looser fit, allowing lower speeds is recommended for lighter loads and a tighter fit allowing higher speeds is recommended for heavier loads

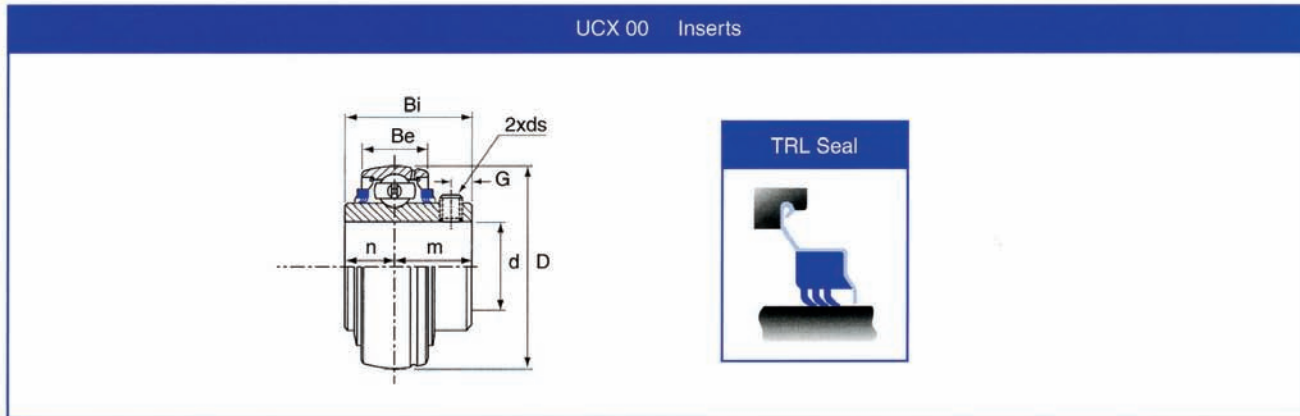
Bearing No.	Max Speed rev/min	Bearing No.	Max Speed rev/min
201	4500	210	1800
202	4500	211	1600
203	4500	212	1500
204	4000	213	1400
205	3400	214	1300
206	2800	215	1200
207	2400	216	1100
208	2200	217	1000
209	1900	218	950

- Working temperatures -30°C to +120°C

- Grease nipple thread sizes:

201 - 209 M6
210 - 215 M8
216 - 218 M10

Inserts



UCX 00 Inserts with Set Screws (Medium Duty)

Bearing Unit	Shaft Dia.		D	Bi	Be	n	m	G	ds		Load Rating (kg)		Mass kg
	d inch	d mm							inch	mm	Dynamic	Static	
UCX05	1"	25	62	38.1	19	15.9	22.2	6	1/4"-28UNF	M6X1.0	1520	1020	0.39
UCX05-16		0.38											
UCX06	1.1/4"	30	72	42.9	20	17.5	25.4	6.5	5/16"-24UNF	M8X1.0	2010	1390	0.58
UCX06-20		0.55											
UCX07	1.1/4"	35	80	49.2	21	19.0	30.2	8.0	5/16"-24UNF	M8X1.0	2560	1810	0.72
UCX07-20													0.75
UCX07-22													1.3/8"
UCX08	1.1/2"	40	85	49.2	22	19.0	30.2	8.0	5/16"-24UNF	M8X1.0	2650	1910	0.83
UCX08-24													0.87
UCX09	1.3/4"	45	90	51.6	24	19.0	32.6	10.0	3/8"-24UNF	M10X1.0	2750	2020	0.95
UCX09-28													0.97
UCX10	2"	50	100	55.6	25	22.2	33.4	10.0	3/8"-24UNF	M10X1.0	3400	2550	1.29
UCX10-32													1.26
UCX11	2.1/4"	55	110	65.1	27	25.4	39.7	10.0	3/8"-24UNF	M10X1.0	4100	3150	1.80
UCX11-36													1.70
UCX12	2.3/8"	60	120	65.1	28	25.4	39.7	10.0	3/8"-24UNF	M10X1.0	4480	3470	2.05
UCX12-38													2.03
UCX13	2.1/2"	65	125	74.6	30	30.2	44.4	12.0	7/16"-20UNF	M12X1.5	4870	3810	2.52
UCX13-40													2.61
UCX14	2.3/4"	70	130	77.8	30	33.3	44.5	12.0	7/16"-20UNF	M12X1.5	5190	4190	2.74
UCX14-44													2.75
UCX15	3"	75	140	82.6	32	33.3	49.3	14.0	7/16"-20UNF	M12X1.5	5700	4550	3.41
UCX15-48													3.32

Bearing Speeds

The maximum rotational speed of a grease lubricated ball bearing is related to the fit between shaft and bearing.

Under normal operating conditions the fit between the bearing and shaft should be h7. The maximum permissible bearing speeds are shown on the right.

A looser fit, allowing lower speeds is recommended for lighter loads and a tighter fit allowing higher speeds is recommended for heavier loads

Bearing No.	Max Speed rev/min	Bearing No.	Max Speed rev/min
201	4500	210	1800
202	4500	211	1600
203	4500	212	1500
204	4000	213	1400
205	3400	214	1300
206	2800	215	1200
207	2400	216	1100
208	2200	217	1000
209	1900	218	950

Bearings

- **6000 Series**
- **6200 Series**
- **6300 & 6800 Series**
- **6900 & 1600 Series**
- **R Series**
- **Metric Taper Bearings**
- **Imperial Taper Bearings**



Belting Supply Services



Industrial

COMPRESSED AIR HOSE

Complies to SABS 988

Applications	For use with air compressors in mines, quarries, service stations, construction sites, shipyards, manufacturing industries and general services
Tube	Synthetic rubber and oil mist resistant
Reinforcement	High tensile synthetic textile filament yarn
Cover	Ozone and weather resistant synthetic rubber, UV protected
Colour	■ Black
Surface	Smooth
Operating temperature	-20° to 80° C
Safety factor	4:1

Air Hose

SABS 988 - 20 ID -  - 12 Bar W.P.

Nominal ID		Inside Diameter	Outside Diameter	Working Pressure	Bursting Pressure	Length
Inch	mm.	mm.	mm.	bar	bar	M./Roll
1/4	6	6.3	12.5	12	48	100
5/16	8	8.0	15	12	48	100
3/8	9	9.5	16.5	12	48	100
1/2	12	12.7	20	12	48	60
3/4	19	19.0	28	12	48	60
1	25	25.4	36	12	48	60
1 1/4	31	31.8	46	10	30	30
1 1/2	38	38.1	53	10	30	30
2	50	50.0	67.6	10	30	30

WELDING HOSE

Complies to SABS 582

Applications	For use with welding and allied processes in workshop, construction sites, mining and manufacturing industries.
Tube	High ignition temperature synthetic rubber
Reinforcement	High tensile synthetic textile filament yarn
Cover	Excellent ozone and weather resistant synthetic rubber
Colour	■ Red: acetylene ■ Blue: oxygen
Surface	Fluted
Operating temperature	-25° to +80° C
Safety factor	3:1

Single line welding hose



Nominal ID		Inside Diameter	Outside Diameter	Working Pressure	Bursting Pressure	Length
Inch	mm.	mm.	mm.	bar	bar	M./Roll
5/16	8	8	15	20	60	100

Double line welding hose



Nominal ID		Inside Diameter	Outside Diameter	Working Pressure	Bursting Pressure	Length
Inch	mm.	mm.	mm.	bar	bar	M./Roll
5/16 + 5/16	8 + 8	8 + 8	15 + 15	20	60	100

LPG GAS HOSE

Complies to SABS 1156/2

Applications	For use with welding and applied processes in workshops, mining, construction sites and manufacturing industries
Tube	High ignition temperature synthetic rubber
Reinforcement	High tensile synthetic textile filament yarn
Cover	Ozone and weather resistant synthetic rubber
Colour	■ Orange
Surface	Smooth
Operating temperature	-25° to 80° C
Safety factor	3:1

LPG Hose



Nominal ID		Inside Diameter	Outside Diameter	Working Pressure	Bursting Pressure	Length
Inch	mm.	mm.	mm.	bar	bar	M./Roll
5/16	8	8	15	20	60	100

Automotive

MULTIPURPOSE HOSE

Applications	A premium quality hose for multipurpose applications. Suitable for conveying air, water, fuel, oil and other common solvents
Tube	Oil resistant synthetic rubber
Reinforcement	High tensile synthetic textile filament yarn
Cover	Oil, weather and abrasion resistant synthetic rubber
Colour	■ Red
Surface	Smooth
Operating temperature	-20° to +100° C
Safety Factor	3:1

Multipurpose Hose

JNER - 12 ID 20 Bar W.P.

Nominal ID		Inside Diameter	Outside Diameter	Working Pressure	Bursting Pressure	Length
Inch	mm.					
1/2	12	12.7	21	20	60	100
3/4	19	19.0	30	20	60	50
1	25	25.4	36.5	20	50	50

CAR HEATER HOSE

Complies to SAE J20 R3 D1

Applications	For use in engine cooling systems
Tube	Glycol resistant synthetic rubber
Reinforcement	High tensile synthetic textile filament yarn
Cover	Ozone and weather resistant synthetic rubber
Colour	■ Black
Surface	Smooth
Operating temperature	-20° to +100° C
Safety factor	4:1

Car heater Hose

JNER - 12 ID 5 Bar W.P. HEATER HOSE

Nominal ID		Inside Diameter	Outside Diameter	Working Pressure	Bursting Pressure	Length
Inch	mm.					
1/2	12	12.7	20	5	20	50
5/8	16	16	24	5	20	50
3/4	19	19	27	5	20	50
1	25	25.4	36	5	20	50

FUEL / OIL HOSE

Applications	For conveying fuel and oil in automotive lines and for general usage in contact with fuel/oil
Tube	Fuel and oil resistant synthetic rubber
Reinforcement	High tensile synthetic textile filament yarn
Cover	Fuel, oil, ozone and weather resistant synthetic rubber
Colour	■ Black
Surface	Smooth
Operating temperature	-20° to +100° C
Safety factor	3:1

Fuel / Oil Hose



Nominal ID		Inside Diameter	Outside Diameter	Working Pressure	Bursting Pressure	Length
Inch	mm.	mm.	mm.	bar	bar	M./Roll
3/16	5	5.0	12.0	20	60	50
1/4	6	6.3	13.3	20	60	50
5/16	8	8.0	15.0	20	60	50
3/8	9	9.5	16.5	20	60	50
1/2	12	12.7	20.0	20	60	50

AIR BRAKE HOSE

Complies to SAE J1402 A

Applications	For use in automotive air brake systems
Tube	Oil resistant synthetic rubber
Reinforcement	High tensile synthetic textile filament yarn
Cover	Heat and ozone resistant synthetic rubber
Colour	■ Black
Surface	Smooth
Operating temperature	-40° to +120° C
Safety Factor	6.2:1

Air Brake Hose



Nominal ID		Inside Diameter	Outside Diameter	Working Pressure	Bursting Pressure	Length
Inch	mm.	mm.	mm.	bar	bar	M./Roll
1/2	12	12.7	22.3	10	62	60

PVC

LAYFLAT DELIVERY HOSE

Applications	Open ended dewatering hose, for use in agricultural and mining industries
Tube	Cylindrically woven - tenacity vinylon yarn impregnated on both sides with PVC
Colour	■ Blue
Surface	Smooth
Safety factor	3:1

Layflat delivery Hose

Lion Brand - 2" - 3 Bar W.P.

Nominal ID		Inside Diameter	Wall Thickness	Working Pressure	Bursting Pressure	Length
Inch	mm.	mm.	mm.	bar	bar	M./Roll
1 1/2	40	40	0.25 kg/m	3	9	100
2	50	50	0.31 kg/m	3	9	100
3	75	75	0.45 kg/m	3	9	100
4	100	100	0.65 kg/m	3	9	100
6	150	150	1.25 kg/m	3	9	100

Nominal ID		Inside Diameter	Wall Thickness	Working Pressure	Bursting Pressure	Length
Inch	mm.	mm.	mm.	bar	bar	M./Roll
2	50	50	0.40 kg/m	7	21	100
3	75	75	0.60 kg/m	7	21	100
4	100	100	0.85 kg/m	7	21	100

DRAGLINE

Standard duty (5 year guarantee)

Applications	Longitudinally reinforced to prevent stretching when dragged, long lasting, cut and abrasion resistant, UV stabilised
Tube	PVC no reinforcing
Colour	■ Blue
Surface	Fluted
Safety factor	3:1

Dragline

Flexflow

Nominal ID		Inside Diameter	Working Pressure	Bursting Pressure	Length
Inch	mm.	mm.	bar	bar	M./Roll
3/4	20	20	1	3	100



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