





CUSTOMER FOCUSED · HIGHEST QUALITY PRODUCTS · ENGINEERED TO EXACT DETAIL

# QUALITY VALVES

## FLOATING BALL VALVES









6" OIL MANIFOLD

12" 300 SUB SEA

**FUEL GAS PACKAGE** 



6" 600 SIL 3 HIPPS PACKAGE



16" 600 EXTENSION GAS PIPELINE



PRODUCTION 36"600



OFFSHORE PLATFORM



PLATFORM PRODUCTION MANIFOLD



API TEST MACHINES









ACTUATION



FIRE SAFE TESTING

42" 600 PRODUCTION



#### **ENFLOW**

Enflow is a Canadian based designer and manufacturer of high quality valves and has established a reputation as a reliable provider of technologically advanced high quality, engineered valve products for the global market. The Enflow management team has over 200 years of proven valve experience.

Valves are our core business. We are committed to Total Customer Satisfaction by meeting or exceeding our customers and industry expectations for quality and service from design to delivery. We strive to provide a value added benefit to our customer base through design, longevity of service and technical assistance.

Enflow produces a broad range of quality valves for Oil and gas production, pipelines, utilities, shale gas and oil, processing, petrochemical, SAG-D, steam, power, waste water and mining.

Applications range from light industrial to critical areas such as cryogenic, subsea pipelines, offshore platforms, LNG, and acid gas.

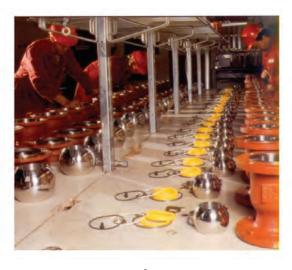
#### **ENFLOW COMPANIES**

Enflow Industries Inc.	Calgary, Alberta, Canada
EF Manufacturing Inc.	Calgary, Alberta, Canada
Flow Control Oil and Gas Products division EF Manufacturing Inc.	Calgary. Alberta, Canada
Enflow Industries Equipment (Suzhou) Co. Ltd.	Suzhou, China
Enflow Hong Kong Limited	Hong Kong
Enflow FZE	Dubai, UAE

#### FLOATING BALL VALVE MANUFACTURING RANGE

SIZE	ANSI 150	ANS 300	ANSI 600	ANSI 900	ANSI 1500	ANSI 2500
1/2"	*	*	*		*	*
3/4"	*	*	*		*	*
Ι"	*	*	*		*	*
I 1/2"	*	*	*	*	*	*
2"	*	*	*	*	*	*
3"	*	*	*			
4"	*	*	*			
6"	*	*				
8"	*	*				







3



#### MANUFACTURING STANDARDS AND QUALIFICATIONS

Enflow maintains a rigid Global Quality Management System in full accordance to ISO 9001, ISO TS 29001 (API Q1), and ABSA (Alberta / Canada Government pressure equipment safety authority) which is audited by recognized third party authorities, annually.

Our products have been third party tested to various standards including fire safe Testing: API 607 /ISO 10497, Fugitive Emission Testing: ISO 15848-1 qualification testing and ISO15848-2 production testing, IEC 61508-2 SIL safety integrity level and Cryogenic Testing: BS 6364, Our improvement to quality product verification is continuous. We have additional third party laboratory and certification programs in process. Our goal is to ensure our designs provide the optimum value for performance, safety and longevity of life.

ORGANIZATION	STANDARD	DESCRIPTION
American Petroleum Institute	API 598	Valve inspection and test
	API 6D	Specification for pipeline valves
	API 607	Fire test soft seated quarter turn valves
	API 608	Metal ball valves flanged and BW ends
	API Q I	Quality programs for petroleum & gas
American Society of Mechanical Engineers	B16.1.20.1	Pipe Threads
	B16.5	Pipe flanges and flanged fittings
	B16.10	Face to face end to end valve dimensions
	B16.25	Butt welding ends
	B16.34	Valves, flanged, threaded & welding end
	B16.47	Larger diameter steel flanges 26" to 60"
British Standards Institute	BS 6364	Valves for cryogenic service
	BS 10204	Inspection documents, metallic materials
	BS 17292	Metal ball valves - petroleum, allied industries
Canadian Standards Association	CSA B51	Boiler, Pressure Vessel & Piping
	CSA Z245.15	Steel valves for oil & gas pipeline systems
European Standardization Organizations	EN10204	Inspection Documentation for Metal parts
	EN12266-1	Seat Leakage Rates in On/Off valves
International Electromechanical Commission	IEC 61508-2	Safety of electronic systems (SIL safety integrity level)
International Organization for Standardization	ISO 5208	Pressure testing of metallic valves
	ISO 5211	Valves- part turn actuator attachment
	ISO9001	Quality management systems
	ISO 10497	Testing of valves- fire type
	ISO 14313	Pipeline valves- Petroleum & Natural Gas Ind.
	ISO 15848-1	Fugitive emission qualification approval testing
	ISO 15848-2	Fugitive emission production testing
	ISO 21011	Valves for cryogenic service
Manufacturers Standardization Society	MSS SP-25	Standard marking systems for valves
	MSS SP-44	Steel pipeline flanges
	MSS-SP-53	Quality standard valve steel castings & forgings
	MSS SP-54	Quality- valve casting & forging - radiographic
	MSS SP-55	Quality standard steel valve castings - visual
	MSS SP-72	Valves- flanged or Butt welding ends
National Association of Corrosive Engineers	NACE MR 0175	Materials for use in H2S environments
	NACE MR 0103	Materials resistant to Sulphide stress cracking in corrosive refining

4



TYPE	SIZE	PORT	PRESSURE	BODY DESIGN	ENDS	BODY MATERIAL	TRIM MATERIAL	SEAT / SEALS	OPERATOR
ı	2	3	4	5	6	7	8	9	10

I	TYPE	EB = ENFLOW BALL VALVE					
2	SIZE	02 = 2"	up to 8"				
		03 = 3"					
3	PORT	R = REDUCED	F = FULL				
4	PRESSURE	01 = ANSI CLASS 150	09 = ANSI CLASS 900				
		03 = ANSI CLASS 300	I5 = ANSI CLASS I500				
		06 = ANSI CLASS 600	25 = ANSI CLASS 2500				
5	BODY DESIGN	IF = I PIECE END ENTRY BODY	3F = 3 PIECE BOLTED BODY				
		2F = 2 PIECE BOLTED BODY	3E = 3 PIECE THREADED BODY				
6	ENDS	A = RAISED FACE FLANGED	H = BUTT WELD END x RTJ FLANGED END				
		B = RTJ FLANGED	J = WELD ENDS WITH PUPS				
		F = BUTT WELD ENDS	X = HUB ENDS				
		G = BUTT WELD END x RAISED FACE FLANGED EN	O O = OTHER				
7	BODY MATERIAL	01 = WCB / A105N	05 = 25CR DUPLEX : A182 F55 / A 890 5A				
		02 = LCC / LF2 CLASS I	08 = INCONEL 625				
		03 = CF8M / F316	OO = OTHER				
		04 = 22CR DUPLEX: A182 F51/ A890 4A					
8	TRIM	EI = BODY MATERIAL + I MIL ENP					
		E3 = BODY MATERIAL + 3 MIL ENP					
		E7 = BODY MATERIAL + 3 MIL ENP, 4140 STEM +	3 MIL ENP				
		SI = 316Lss					
		S2 = 304ss / F304					
		S3 = 316ss / F316					
		S4 = 410ss / F6A					
		S5 = 22CR DUPLEX / F5 I					
		S6 = 25CR DUPLEX / F55					
		S7 = 316ss TRIM, 17-4PH STEM					
		S8 = 316ss TRIM, NITRONIC 50 STEM					
		S9 = 17-4PH STEM, F51 BALL & SEAT HOLDER, 316ss TRUNNION & SEAT FOLLOWER					
		I0 = I7-4PH + I MIL ENP TRIM					
		OO = OTHER					
9	SEATS / SEALS	B = RPTFE SEAT / SEALS: STEM HNBR, BODY PTFE, GRAPHITE FIRE SAFE SEALS & STEM PACKING					
		C = NYLON SEAT/ SEALS: STEM HNBR,BODY PTF	E, GRAPHITE FIRE SAFE SEALS & STEM PACKING				
		E = PEEK SEAT / SEALS: STEM HNBR, BODY PTFE, GRAPHITE FIRE SAFE SEALS & STEM PACKING					
		F = DEVLON, MOLON SEATS / SEALS: STEM HNBR, BODY, GRAPHITE FIRE SAFE SEALS & STEM PACKING					
		L = NYLON SEAT / SEALS: STEM VITON B, BODY PTFE, GRAPHITE FIRE SAFE SEALS & STEM PACKING					
		M = METAL to METAL SEATING / SEALS TO BE DETERMINED ON APPLICATION					
		N = NYLON SEATS / PTFE STEM AND BODY SEALS, GRAPHITE FIRE SAFE SEALS & STEM PACKING					
		P = PEEK SEATS / PTFE STEM AND BODY SEALS, GRAPHITE FIRE SAFE SEALS & STEM PACKING					
		Q = PEEK SEAT / SEALS: STEM VITON B, BODY PTFE , GRAPHITE FIRE SAFE SEALS & STEM PACKING					
		T = RPTFE SEATS / PTFE STEM AND BODY SEALS, GRAPHITE FIRE SAFE SEALS & STEM PACKING					
		U= DEVLON, MOLON SEATS / SEALS: STEM VITON B, BODY PTFE, GRAPHITE FIRE SAFE SEALS & PACKING					
		V = DEVLON, MOLON SEATS / PTFE STEM & BODY SEALS, GRAPHITE FIRE SAFE SEALS & STEM PACKING					
		X = PCTFE SEATS / PTFE STEM & BODY SEALS, GR	APHITE FIRE SAFE SEALS & STEM PACKING				
		O = OTHER					
10	OPERATOR	L = LEVER $B = BARE STEM$ $G = GEA$	R S = SPRING RETURN O = OTHER				



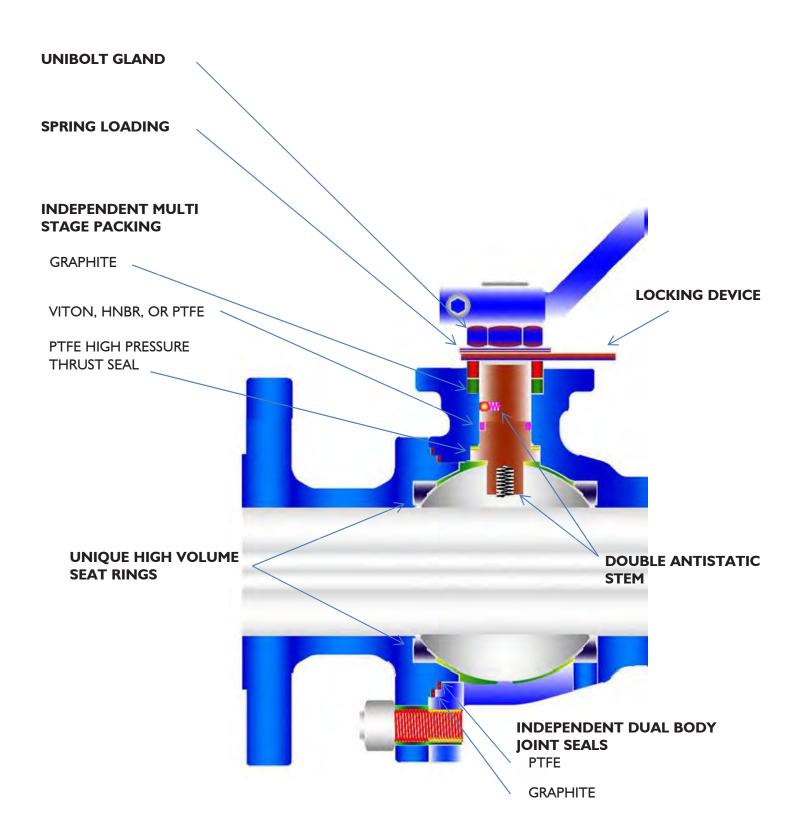
#### **ENFLOW FLOATING BALL VALVE FEATURES AND BENEFITS**

#### **DESIGN**

- DESIGN AND DIMENSIONS: to API 6D, ISO 14313, CSA Z245.15, API 608.
- UNIBOLT GLAND: ensures even packing load and prevents cocking.
- **SPRING LOADING OF PACKING:** maintains constant load on packing eliminating the need for constant adjustment.
- **INDEPENDENT MULTI STAGE PACKING:** ensures compliance to the severe low emission standards and eliminates the requirement for stem sealant injection.
- **PRIME SEALS ARE INERT:** for the widest range of service applications. Secondary stem and seat seal options allows the choice of inert or customer preferred materials.
- UNIQUE HIGH VOLUME SEAT RINGS: provide absolute seal in low and high pressure conditions. Seat rings are designed and tested to API 6D / ISO 14313 / CSA Z245.15, with the API 6D pressure testing sequencing of high pressure seat test first and low pressure seat test last, exceeding the easier requirements of API 598.
- **INDEPENDENT DUAL BODY JOINT SEALS:** combined with a tight tolerance metal to metal overlap, joint seal integrity and strength is ensured. Both seals are different inert materials (PTFE and Graphite) and both are enveloped on all sides by specially designed metal joint pocket construction.
- LOCKING FEATURE: is standard on all valves.
- ANTISTATIC: valve has dual antistatic stem, grounding stem to body and stem to ball.
- **WALL THICKNESS:** wall thickness of all valves **exceed** the ANSI B16:34 requirement, to ensure thickness between heavy and light sections have the proper volumes for optimal flow and cooling, eliminating shrinkage which is a major cause of shell leakage. The additional wall thickness also meets the customer requirements for additional corrosion allowance.
- ANTI BLOW OUT STEM: retains the stem safely.
- AUTOMATIC INTERNAL CAVITY RELIEF: automatic provides relief of dangerous pressure build up in the
  cavity with venting safely contained within the line.
- **FIRE SAFE:** 3rd party tested and certified to API 607.
- ISO 5211 MOUNTING PADS
- NACE MR0175



## STATE OF THE ART FLOATING BALL VALVE API 6D / ISO 14313 / CSA 125.15 / API 608 INERT PRIME SEALS FOR WIDEST RANGE OF SERVICE APPLICATIONS





#### **VALVE TESTING ENFLOW FLOATING BALL VALVE**

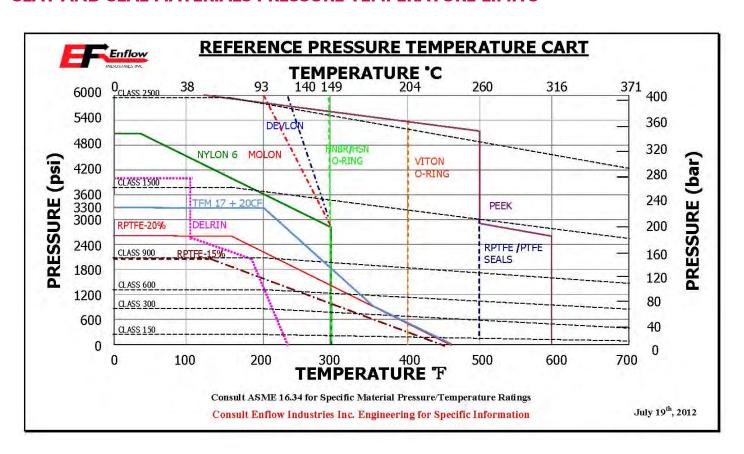
SIZES: 2" to 8" ARE TESTED to API 6D / ISO 14313 / CSA Z245.15 or to API 598

SIZES LESS THAN 2" ARE TESTED TO API 598

#### **BODY AND TRIM MATERIALS**

CARBON STEEL	A105N, A 216 WCB
LOW TEMPERATURE CARBON STEEL	A350 LF2 class 1, A352 LCC
LOW ALLOY STEEL	ANSI 4140, A29 4140, A350 LF3
MARTENSITIC STAINLESS STEEL	AISI 410, A182 6A, A217 CA15, A182 F6NM, A487 CA6NM
AUSTENITIC STAINLESS STEEL	A182 F316, A182 F316L, NITRONIC 50 (A182 XM-19 / UNS S20910),
	A351 CF8M, A351 CF8, A351 CF3M
PRECIPITATION HARDENING STAINLESS STEEL	17-4PH (A564 GR 630 H1150M, UNS S17400)
DUPLEX STAINLESS STEELS	A182 F51 (UNS S31803), A890 4A (UINS 31803), A182 F55 (UNS S31760),
	A890 6A (UNS 32760)
NICKEL ALLOYS	INCONEL 625 (UNS NO6625), INCOLOY 825 (UNS N08825), MONEL
	400, MONEL K500
OTHER	UPON REQUEST

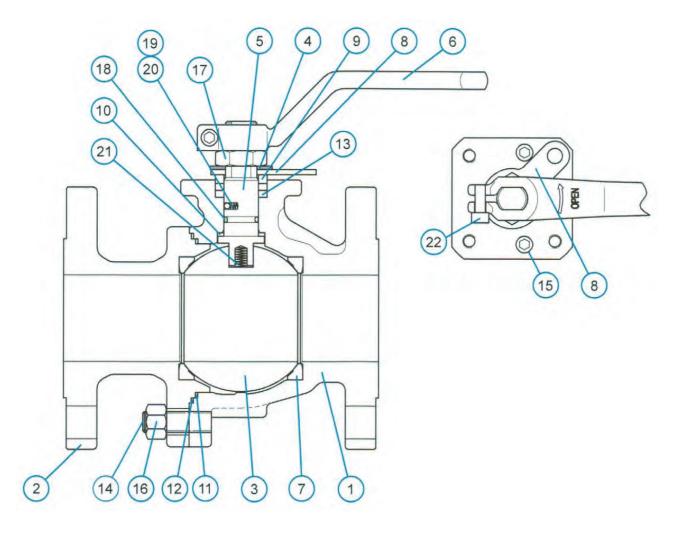
#### SEAT AND SEAL MATERIALS PRESSURE TEMPERATURE LIMITS





## **CROSS SECTIONAL DRAWING**

## Floating Ball Valve, Full & Reduced Port, Lever & Actuation Operated



ITEM	DESCRIPTION
I	BODY
2	ADAPTER
3	BALL
4	DISC SPRINGS
5	STEM
6	LEVER
7	SEAT
8	STOPPER

ITEM	DESCRIPTION
9	PACKING RING
10	THRUST WASHER
11	BODY SEAL
12	BODY GASKET
13	PACKING
14	BODY BOLT
15	SCREW
16	BODY NUT

ITEM	DESCRIPTION
17	GLAND NUT
18	STEM SEAL
19	ANTISTATIC BALL
20	ANTISTATIC SPRING
21	ANTISTATIC SPRING
22	SCREW
23	NAME PLATE
24	RIVET



#### **SIZES & DIMENSIONS**

## $\frac{1}{2}$ " to $\frac{1}{2}$ " Full port, Lever operated

Size in inches Dimensions in mm

#### **ASME CLASS 150**

SIZE	DI - Full Port	L	Н	W	WEIGHT - kg (lb)
1/2"	13	108	108	160	4.5 (10)
3/4"	19	117	107	180	5 (11)
l"	25	127	113	180	5.5 (12)
11/2"	38	165	132	240	6.5 (14)

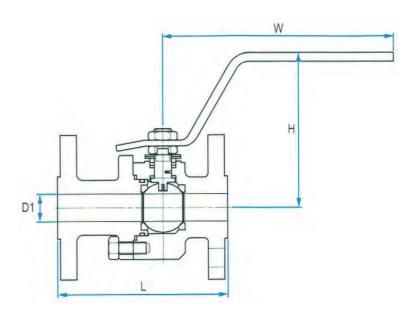
## **ASME CLASS 300**

SIZE	DI - Full Port	L	Н	W	WEIGHT - kg (lb)
1/2"	13	140	108	160	5 (11)
3/4"	19	152	107	180	5.5 (12)
1"	25	165	113	180	6 (13)
11/2"	38	190	132	240	11 (14)

#### **ASME CLASS 600**

SIZE	DI - Full Port	L	Н	W	WEIGHT - kg (lb)
1/2"	13	165	108	160	5.5 (12)
3/4"	19	196	107	180	7.25 (16)
Ι"	25	216	117	190	10 (22)
11/2"	38	241	134	240	12 (26)

#### ASME CLASS 900 & 1500 \*available on order request





#### **SIZES & DIMENSIONS**

## 2" to 10" Full port, Lever or Gear operated

Size in inches Dimensions in mm

#### **ASME CLASS 150**

SIZE	DI - Full Port	L	Н	W	WEIGHT - kg (lb)	
2"	49	178	138	240	10 (22)	
3"	74	203	198	400	19 (42)	
4"	100	229	218	400	32 (71)	
6"	150	394	285	600	67 (148)	
8"	201	457	342	n/a	111 (245)	
10"	252	533	495	n/a	205 (452)	

#### **ASME CLASS 300**

SIZE	DI - Full Port	L	Н	W	WEIGHT - kg (lb)	
2"	49	216	138	240	9 (20)	
3"	74	283	198	400	30 (66)	
4"	100	305	218	400	32 (71)	
6"	150	403	285	800	126 (278)	
8"	201	502	342	n/a	200 (441)	

#### **ASME CLASS 600**

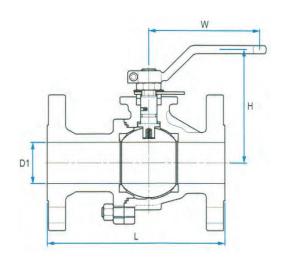
SIZE	DI - Full Port	L	Н	W	WEIGHT - kg (lb)	
2"	49	292	164	340	25 (55)	
3"	74	356	200	368	51 (112)	
4"	100	432	202	610	92 (203)	

## **ASME CLASS 900**

SIZE	DI - Full Port	L	Н	W	WEIGHT - kg (lb)	
2"	49	368	174	385	48 (106)	

#### **ASME CLASS 1500**

SIZE	DI - Full Port	L	Н	W	WEIGHT - kg (lb)	
2"	49	368	174	385	48 (106)	





#### **SIZES & DIMENSIONS**

## 2" to 10" Reduced port, Lever or Gear operated

Size in inches Dimensions in mm

#### **ASME CLASS 150**

SIZE	DI - Reduced Port	L	Н	W	WEIGHT - kg (lb)	
2"	38	178	95	330	7.5 (17)	
3"	49	203	127	350	13 (28)	
4"	74	229	294	510	25 (55)	
6"	100	394	203	400	36 (79)	
8"	150	457	272	760	75 (165)	
10"	201	533	342	n/a	122 (269)	

#### **ASME CLASS 300**

SIZE	DI - Reduced Port	L	Н	W	WEIGHT - kg (lb)
2"	38	216	95	330	12 (27)
3"	49	283 127		330	27 (60)
4"	74	305	294	350	35 (77)
6"	100	502	203	510	50 (110)
8"	150	419	272	760	125 (276)

#### **ASME CLASS 600**

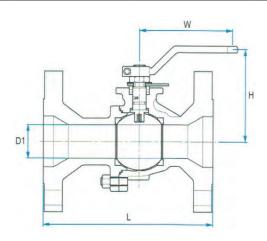
SIZE	DI - Reduced Port	L	Н	W	WEIGHT - kg (lb)	
2"	38	38 292		345	22 (48)	
3"	49	356	127	385	32.5 (71)	
4"	74	74 432		610	72 (159)	
6"	100	559	203	610	105 (231)	

#### **ASME CLASS 900**

SIZE	DI - Reduced Port	L	Н	W	WEIGHT - kg (lb)	
2"	38	292	95	345	41 (90)	
3"	49	381	174	385	52 (115)	

#### **ASME CLASS 1500**

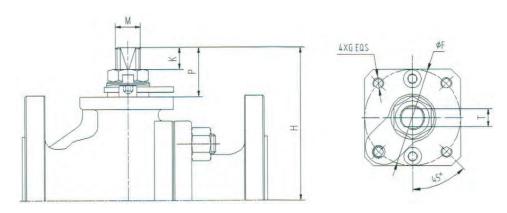
SIZE	DI - Reduced Port	L	Н	W	WEIGHT - kg (lb)	
2"	38	292	95	345	41 (90)	
3"	49	470	174	385	68 (150)	



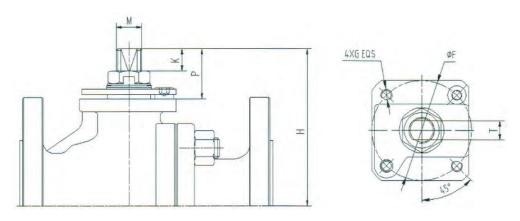


## **TOP WORKS DIMENSIONS OF FLOATING BALL VALVE**

SIZE	CLASS	н	Р	К	F	G	М	т	ISO MOUNTING FLANGE	TORQUE (N.m)
I 1/2"	150	89	33	16	50	M6	M18X1.5	13	F05	25
2"	150	117	37	17	70	M8	MI8XI.5	13	F07	44
3"	150	167	52	28	102	MI0	M27X1.5	20	FI0	77
4"	150	188	53	28	102	MI0	M27X1.5	20	FI0	132
6"	150	255	60	31	125	MI2	M36X1.5	24	FI2	263
1 1/2"	300	89	33	16	50	M6	MI8XI.5	13	F05	33
2"	300	117	37	17	70	M8	MI8XI.5	13	F07	61
3"	300	168	52	28	102	MI0	M27X1.5	20	FI0	132
4"	300	190	55	28	102	MI0	M30X1.5	20	FI0	253
6"	300	256	60	31	125	MI2	M40X1.5	28	FI2	563
	AN ADI	DITIONAL	35% TOR	QUE SAFE	TY FACTO	R ADDER	IS RECOMMEN	IDED FOR	ACTUATION	



SIZE	CLASS	н	Р	К	F	G	М	т	ISO MOUNTING FLANGE	TORQUE (N.m)
I 1/2"	600	100	35	13.5	70	M8	M22X1.5	12	F07	99
2"	600	110	35	13.5	70	M8	M22X1.5	12	F07	121
3"	600	165	61	26	102	MI0	M30X1.5	20	FI0	259
4"	600	212	64.5	26	102	MI0	M40X1.5	28	FI0	561
	AN ADI	DITIONAL	35% TOR	QUE SAFE	TY FACTO	R ADDER	IS RECOMMEN	IDED FOR	ACTUATION	





## A SELECTION OF ENFLOW CUSTOMERS AND USERS

AGIP	LIBYA	EXXON MOBIL KEARL LAKE	CANADA
ADDAX PETROLEUM	OFF SHORE NIGERIA	EXXON MOBIL	OFFSHORE NEW GUINEA
AI FURAT PETROLEUM	SYRIA	EXXON MOBIL	OFFSHORE AFRICA
ALTA GAS	CANADA	FERTIMEX	MEXICO
AMARADA HESS	USA	FLAREON SYSTEMS	MALAYSIA
ANADARKO	USA	FLOW SYSTEMS	MALAYSIA
APACHE	CANADA	FRASER UNICAL	MALAYSIA
ARCO (BP)	USA	FRED OLSEN PRODUCTION	OFFSHORE NIGERIA
ARCO (BP)	INDONESIA	GAS LIQUIDS ENGINEERING	CANADA
ASAMERA	INDONESIA	GAS MALAYSIA	MALAYSIA
BMW WEATHERFORD	CANADA	GLACIER RIDGE RESOURCES	CANADA
ВР	INDONESIA	GLOBAL PROCESS SYSTEMS	MALAYSIA, UAE
ВР	INDIA	GRIZZLY OIL SANDS	CANADA
BURLINGTON RESOURCES	CANADA	HALIBURTON ENERGY SERVICES	INDONESIA
BWS	CANADA	HESS CORP	USA
BONATI SPA	ITALY	HSP/MCCULLOUGH	UK
BOW RIVER PIPELINES	CANADA	HUSKY - VARIOUS	CANADA
BROWN AND ROOT	USA	HUSKY - TANK FARMS	CANADA
BOPP & REUTHER	GERMANY	HUSKY HEAVY OIL (VARIOUS)	CANADA
CANADIAN HUNTER EXPLORATION	CANADA	HYUNDAI HEAVY INDUSTRIES	KOREA
CANADIAN NATURAL RESOURCES	CANADA	IMV PROJECTS	CANADA
CANADIA OCCIDENTAL PETROLEUM	YEMEN	KAVERNER PROCESS	CANADA, NORWAY
CANADIAN NEXEN PETROLEUM	YEMEN	KEYERA	CANADA
CANADIAN NEXEN PETROLEUM	CANADA	KOCKEN ENERGIA	MEXICO
CENTRA GAS	CANADA	KUWAIT NATIONAL PETROLEUM	KUWAIT
CERGILL	USA	MALAYSIA LNG	MALAYSIA
CHINA NATIONAL PETROLEUM CO (CNPC)	CHINA	MASOURA PETROLEUM COMPANY	EGYPT
CLIPPER ENERGY	EQUADOR	MAXUS	EQUADOR
COOGEE RESOURCES	OFFSHORE AUSTRALIA	MCJUNKIN REDMAN	USA
CRESENT PETROLEUM	IRAQ	MEG ENERGY	CANADA
CUU LONG JOINT OP CO (CLJOC)	VIETNAM	MERCADOR	SINGAPORE
CZAR RESOURCES	CANADA	MOTO MECHANICA	ARGENTINA
DEVON JACKFISH	CANADA	MURPHY OIL	CANADA
ELAN ENERGY	CANADA	MURPHY SARAWAK OIL	MALAYSIA
EMCO	CANADA	MUSTANG ENGINEERING	USA
ENCANA CABIN PROJECT	CANADA	NATCO	CANADA
ENCANA PELICAN LAKE	CANADA	NATIONAL IRANIAN GAS COMPANY	IRAN
ENCANA (various)	CANADA	NATIONAL IRANIAN OIL COMPANY	IRAN
ENERFLEX	CANADA	NEPOMUCENO	COLUMBIA
ESSO BALDER	NORWAY	NEXEN LONG LAKE	CANADA
ESSO PRODUCTION MALAYSIA	MALAYSIA	NORTH OIL COMPANY (NOC)	IRAQ



## A SELECTION OF ENFLOW CUSTOMERS AND USERS

NNPC	NIGERIA	SINGLE BOUY MOURINGS (SBM)	MALAYSIA, SINGAPORE
OCCIDENTAL OF OMAN INC	OMAN	SHELL SARAWAK	MALAYSIA
OMV	NEW ZEALAND	SHELL BRUNAI	BRUNAI
PACIFIC NORTHERN GAS	CANADA	SHELL IRAN	IRAN
PEMEX	MEXICO	SHERRITT	CANADA
PENN WEST PETROLEUM	CANADA	SK ENGINEERING	KOREA
PETRECO	CANADA	SNAMPROGETTI CANADA	CANADA
PETRECO SARL	BULGARIA	SOUTH OIL COMPANY (SOC)	IRAQ
PETROBRAS	BRAZIL	SUNCOR ENERGY	CANADA
PETRO INDUSTIAL	EQUADOR	SYNERGI	CANADA
PETROCON	UK	SYRIA PETROLEUM COMPANY (SPC)	SYRIA
PETROFAC MALAYSIA	MALAYSIA	TALISMAN MALAYSIA	MALAYSIA
PETROINRAN	IRAN	TANJUNG OFFSHORE	MALAYSIA
PETRONAS	MALAYSIA	TANKER PACIFIC OFFSHORETERMINALS	SINAPORE, VIETNAM
PETRONAS CARIGALI	MALAYSIA	TECHNICS OFFSHORE	SINGAPORE
PETROVIETNAM	VIETNAM	TECKNICA	UK
PLAINS FABRICATION DIV PLAINS OIL	CANADA	THUMBS	USA
POCO PETROLEUM	CANADA	TODD ENERGY	CANADA
PREMIER PETROLEUM	MYANAMAR	TOTAL ARGENTINA	ARGENTINA
PROPAK SYSTEMS	CANADA	TOTAL YEMEN	YEMEN
PTT	THAILAND	ULTRAFAB	CANADA
QATAR PETROLEUM DEVELOPMENT	QUATAR	UNOCAL	INDONESIA, THAILAND
REPSOL	LIBYA	VICO	INDONESIA
ROMPETRO OF LIBYA	LIBYA	VIETSOVPETRO	VIETNAM
SAIPEM	UAE, ITALY, CANADA	WEATHERFORD UAE	UAE, TURKEY, IRAQ
SANTOS	INDONESIA	WESTERN GAS PROCESSORS	USA
SASKENERGY	CANADA	YPFB	BOLIVIA
SINGLE BOUY MOURINGS (SBM)	MALAYSIA, SINGAPORE	ZUTINA OIL COMPANY	LIBYA









#### **Head Office:**

3740 E - 11A Street NE Calgary, Alberta, Canada T2E 6M6. Telephone (403) 266-4977 Facsimile (403) 266-7334