



Force Five Infinity Air Winches





Contents

Force Five Infinity Utility Air Winches 3 4,400 lbs (2000 kg) to 22,000 lbs (10000 kg)

Designed for offshore and harsh industrial environments the robust Infinity design features rugged radial piston air motors, planetary gearboxes, 5:1 design factors, and a wide variety of standard features and options.



Force Five Infinity Guideline & Podline Air Winches 15 3,400 lbs (1545 kg) to 10,200 lbs (4636 kg)

Designed for offshore oil drilling into deep waters, lowering and recovering sub-sea equipment.



Force Five Infinity Man Rider™ Air Winches 17 330 lbs (150 kg) to 6,870 lbs (3123 kg)

3rd Party Type Approved Infinity Man Riders™ are available in both dedicated and dual purpose configurations and have set the standard for safety, reliability, and solutions worldwide.



Infinity Options & Accessories 27

Featuring **N4 & N5** - ABS & DNV Regulatory Requirements; **-CE components**; a visual sample of current **Options**; **Electric over Air** remote pendant control system; **Accu-Spool™** Level Wind features and details; and **Air Line Accessories** with Filter, Lubricator, Regulator, Strainer, Muffler & Liquidator.



Tech Tips 35

A variety of Tech Tips, including Wire Rope Capacity Estimator, Fleet Angle Calculator, Wire Rope Selection tools and Outline Dimension Drawings available from our website.



Winch Checklist 37

A comprehensive checklist to assist us in providing the product or service to meet your applications specific requirements.



NOTE: Hydraulic models are available, please contact Client Services.

WARNING: Unless otherwise noted this equipment is not designed for transporting people or lifting loads over people. It is the user's responsibility to determine the suitability of this product for any particular use and to check compliance with applicable regulations. Before installation, see maintenance and operations manual for additional warnings and precautions.

Force Five Infinity Utility Air Winches



Capacity from 4,400 lbs (2000 kg) to 22,000 lbs (10000 kg)

Setting the standards in winch technology with time savings, space savings and enhanced safety, Ingersoll Rand's line of high quality Force 5i™ Infinity air winches are known throughout the world for their rugged dependability and quality in industrial environments.

Featuring heavy duty piston motors, internal gear boxes and fabricated steel frames, Infinity winches can be made in a variety of configurations to suit particular applications. Numerous options, cold weather versions and type approvals offered. Special applications welcomed.

Force Five Infinity Utility Air Winches

Features

Rugged Compact and Safe Design

- Meets ANSI / ASME B30.7
- Minimum 5:1 design factor at rated load
- Top layer rated line pull. A Force 5i winch always pulls or lifts its rated capacity at any layer.
- "Lift to shift" winch mounted lever throttle
- Minimum 18:1 drum diameter to wire rope diameter ratio reduces wire rope wear
- Compact gearbox-in-drum design
- Standard design temperature range is 0°C through 60°C
- Models have been design reviewed or Type Approved by ABS and DNV
- Lifting lugs designed for lifting weight of winch plus full drum of wire rope
- Group of mechanism as per FEM: 5m

Suitable for Hazardous Explosion Proof Environments

- Flameproof by design. Air motors (unlike electric motors) are inherently spark resistant
- ATEX classification (as per directive EC 94/9/EEC). CE compliant models marked EX II 2 GD c 200°C X.
- Standard models are suitable for ATEX zone 1 and 2.

Powerful Radial Piston Air Motor

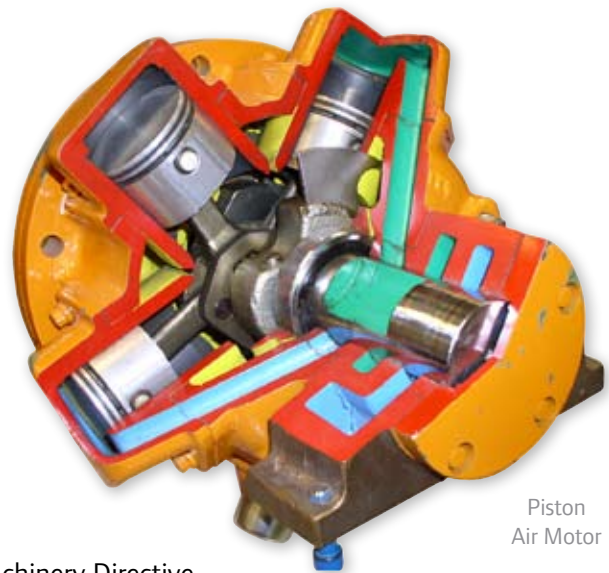
- Positive starting torque
- Superior reliability in harsh environments
- Variable speed control
- Internal splash lubrication
- Precision spotting control at slow speeds

Multiple Brake Configurations

- Manual drum brake standard (FA10i auto disc is standard)
- Optional auto drum brake and /or auto disc available.
- Enclosed automatic oil bath "wet" disc brake is fully sealed against salt spray, dirt or moisture and provides trouble-free operation over thousands of lifting cycles.
- **Ingersoll Rand recommends automatic brakes when winches are used for lifting (compulsory feature for -CE and some world regions)**

Option and Accessories

- | | |
|--|---|
| • Variable drum lengths | • Tensioning manifold |
| • Grooved drum | • Air preparation package |
| • Press roller for spooling assistance | • Emergency lowering system |
| • Drum divider flange(s) | • Manual rope guide |
| • Drum guard* | • Accu-Spool™ level winds |
| • Limit switches | • Hydraulic models |
| • Drum lock | • Third party certification |
| • Construction cage | • Cold weather configurations |
| • Marine paint system | • Material traceability |
| | • CE compliance with European Machinery Directive |



Piston
Air Motor

*** Ingersoll Rand strongly recommends using Drum Guards with all winches to prevent inadvertent contact with winch moving parts.**

Drum Guards are standard for -CE and may be compulsory in some world regions.

Owners and users should always check local regulations and standards before putting a particular product to use.

Operations and Safety Manuals can be downloaded from irtechpubs.com free of charge.

Force Five Infinity Utility Air Winches

Specifications & Performance



FA7i-24XK1G



FA10i-24XK1-CE

Lift Ratings at 5:1 Design Factor (Performance at 6.3 Bar - 90 PSI at air inlet when winch is operating)

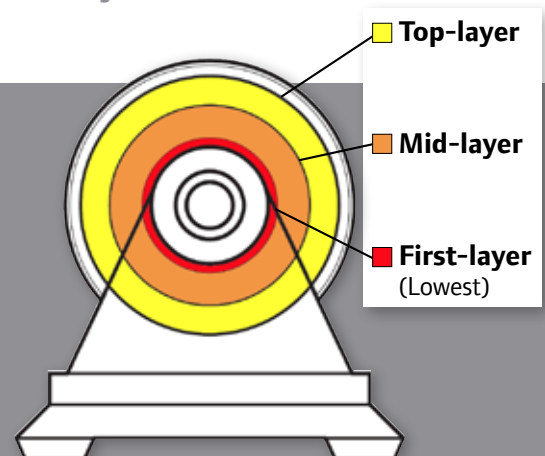
Model #	hp	Top Layer		First Layer		Speed at		Stall		Average Air		Sound Level ⁽²⁾ db(A)	Inlet Size NPT	Exhaust Size NPT	Net Weight	
		Rated Capacity	Speed	Rated Capacity	Speed	Rated Capacity	Speed	Rated Capacity	Speed	Consumption ⁽¹⁾					lbs	kg
		lbs	kg	ft/min	m/min	ft/min	m/min	lbs	kg	f ³ /min	m ³ /min					
FA2i-24XK1	9	4,400	2000	51	16	55	17	9,139	4154	280	8	87	1-1/4"	1-1/4"	850	386
FA2.5i-24XK1	25.2	5,000	2273	132	40	128	39	10,277	4671	700	20	97	1-1/4"	2-1/2"	1,061	481
FA5i-24XK1	25.2	11,000	5000	54	16	51	16	23,594	10725	700	20	97	1-1/4"	2-1/2"	1,872	849
FA5Ti-24XK1	25.2	8,400	3818	70	21	57	17	23,594	10725	700	20	97	1-1/4"	2-1/2"	2,153	977
FA7i-24XK1	25.2	15,400	7000	40	12	35	11	35,946	16305	750	21	97	1-1/4"	2-1/2"	2,205	1000
FA7Ti-24XK1	25.2	12,600	5727	48	15	38	12	35,946	16305	750	21	97	1-1/4"	2-1/2"	2,335	1059
FA10i-24XK1	26.9	22,000	10000	23	7	35	11	38,619	17517	800	23	101	1-1/4"	2-1/2"	3,200	1451

(1) Average Air Consumption is at rated load and speed at top layer

(2) With optional muffler

NOTE: Hydraulic models are available, please contact Client Services.

How Ingersoll Rand Infinity winches are rated



Tip:

Infinity winches are rated at Top Layer.

The Infinity winch will always lift its rated load at any layer of wire rope.

Force Five Infinity Utility Air Winches

Standard Drum Wire Rope Storage Capacity

Capacities represent tightly wound wire rope. Recommended working capacity is 80% of values shown.

Imperial																
Series	Rated capacity lbs	Rope Diameter in	Min Break* lbs	Accumulated rope capacity in feet / number of layers												
				1	2	3	4	5	6	7	8	9	10	11	12	13
FA2i-24	4,400	1/2	22,000	138	289	450	624	809	1,006	1,214	1,435					
		5/8	22,000	111	234	369	515	673	843							
FA2.5i-24	5,000	5/8	25,000	111	234	369	515	673	843							
FA5i-24	11,000	3/4	55,000	128	267	418	581	755	940	1,138	1,346					
		7/8	55,000	110	231	364	508	664	832	1,010						
FA5Ti-24	8,400	3/4	42,000	128	267	418	581	755	940	1,138	1,346	1,567	1,799	2,042	2,297	2,564
		7/8	42,000	110	231	364	508	664	832	1,010	1,201	1,403	1,616	1,841	2,077	
FA7i-24	15,400	7/8	77,000	117	245	385	536	699	873	1,059	1,256					
		1	77,000	102	216	341	478	626	786	957						
FA7Ti-24	12,600	7/8	63,000	117	245	385	536	699	873	1,059	1,256	1,465	1,685	1,917	2,160	
		1	63,000	102	216	341	478	626	786	957	1,139	1,333	1,538			
FA10i-24	22,000	1-1/8	110,000	112	236	371	518	676	845	1,026	1,218					

Metric																
Series	Rated capacity kg	Rope Diameter mm	Min Break* kg	Accumulated rope capacity in meters / number of layers												
				1	2	3	4	5	6	7	8	9	10	11	12	13
FA2i-24	2000	13	10000	41	86	135	187	242	301	364	430					
		16	10000	34	71	112	156	204	255							
FA2.5i-24	2273	16	11365	34	71	112	156	204	255							
FA5i-24	5000	19	25000	39	81	127	177	230	287	347	410					
		22	25000	33	69	110	153	200	251	305						
FA5Ti-24	3818	19	19090	39	81	127	177	230	287	347	410	478	548	622	700	782
		22	19090	33	69	110	153	200	251	305	363	424	488	557		866
FA7i-24	7000	22	35000	35	74	116	162	211	263	320	379					
		25	35000	31	66	104	146	191	240	292						
FA7Ti-24	5727	22	28635	35	74	116	162	211	263	320	379	443	509	579		
		25	28635	31	66	104	146	191	240	292	347	406	469			
FA10i-24	10000	28	50000	35	73	116	161	210	262	318	377					

* **NOTE:** The Minimum Required Breaking Strength for the wire rope needs to be the Rated Capacity multiplied by the Design Factor.
Example: for the FA2i (with a 5:1 Design Factor) 4,400 x 5 = 22,000 lbs.

For additional drum length/drum wire rope storage capacity charts, go to:

http://fileservers.ingersollrand.com/DocumentLibrary/Infinity_Drum_Wire_Rope_Storage_Capacity_05.23.2011.pdf



For additional information on calculating Total Drum Storage Capacity and more, please go to:

Ingersoll Rand Drum Capacity Estimator - <http://www.ingersollrandproducts.com/lifting/winches/drum.htm>

Force Five Infinity Utility Air Winches

Model Identification Codes

How to order standard equipment

Specify winch by complete model number as illustrated below. Add options in the order of their listing. Order accessories separately by part number.

Example: FA7i-24XK220-14GP1

FA	7i	-	24	X	K	220	-	14GP1
Capacity in lbs		Drum flange height		Drum brake		Control		Options
2i = 4,400 2.5i = 5,000 5i = 11,000 5Ti = 8,400 7i = 15,400 7Ti = 12,600 10i = 22,000		- = Std. flange height Ti- = Tall flange (5Ti & 7Ti only)		X = No drum brake M = Manual drum brake A = Auto drum brake		1 = Std. throttle lever 2XX = Remote full flow lever throttle 3XX = Remote pilot pendant throttle 4XX = Remote pilot lever throttle 5XX = Electric over air control XX = Specify hose/elec. cord length in ft		14 = Drum grooving (specify rope size in sixteenths; e.g., 14 = 14/16" or 7/8") B = Extended warranty C1M3 = -20° C ABS design temperature C2M3 = -20° C DNV design temperature D = Drum divider flange & additional cable anchor E = Construction cage G = Drum guard J = Air Line Accessories J1: Filter, J2: Lubricator, J3: Regulator, J4: Strainer, J5: Muffler, J6: Liquidator L = Drum Locking Pin M1 = Material Traceability per DIN 50049/EN10204 Para 2.2 "Typicals" M2 = Material Traceability per DIN 50049/EN10204 Para 3.1b actuals per product as purchased M3 = Material Traceability per DIN 50049/EN10204 Para 3.1b actuals per product as delivered in final condition N4 ⁽²⁾ = Manufactured under ABS survey N5 ⁽²⁾ = Manufactured under DNV survey P = Marine 812 finish paint P1 = Marine 812-X paint system P2 = Marine 812-X paint system - isocyanate free Q = Adjustable Accu-Spool™ S = Rotary limit switch (upper and lower) T = Tensioning manifold U = Underwound wire rope takeoff V = Press Roller W1 = ABS witness test W2 = DNV witness test W3 = LRS witness test W4 = Client witness of load test Y = Overload protection with E-Stop provided on lever throttle -CE ⁽³⁾ = Compliance with the European Machinery Directive and EN14492-1 for power driven winches
Series FA = Air powered		Drum length ⁽¹⁾ 8 = 8 inch 12 = 12 inch 16 = 16 inch 20 = 20 inch 24 = Std. drum length 30 = 30 inch 36 = 36 inch 40 = 40 inch 42 = 42 inch		Disc brake X = No auto disc brake K = Auto disc brake				

(1) Standard drum lengths available in inches

Model	8	12	16	20	24	30	36	40	42
FA2i	✓*	✓	✓	✓	✓				
FA2.5i	✓	✓	✓	✓	✓				
FA5i			✓	✓	✓	✓	✓		
FA5Ti			✓	✓	✓	✓	✓		
FA7i				✓	✓	✓	✓		✓
FA7Ti				✓	✓	✓	✓		✓
FA10i					✓	✓	✓	✓	

* Available only with a drum brake

See Web site for Drum Storage Calculators
<http://www.ingersollrandproducts.com/lifting/winches/drum.htm>



Standard
Lever
Throttle



3XX Control



4XX Lever

NOTE: Hydraulic models are available, please contact Client Services.

(2) For N4 and N5, refer to pages 27 & 28
 (3) See page 29 for -CE option requirements

All winches with the "-CE" option are equipped with the following features:

- Drum Guard
- Emergency Stop Valve (main air shut-off)
- Exhaust Muffler
- Limit Switches
- Overload protection
- CE Documentation

Ingersoll Rand strongly recommends using Drum Guards with all winches to prevent inadvertent contact with winch moving parts.

Drum Guards are standard for -CE and may be compulsory in some world regions.

Owners and users should always check local regulations and standards before putting a particular product to use.

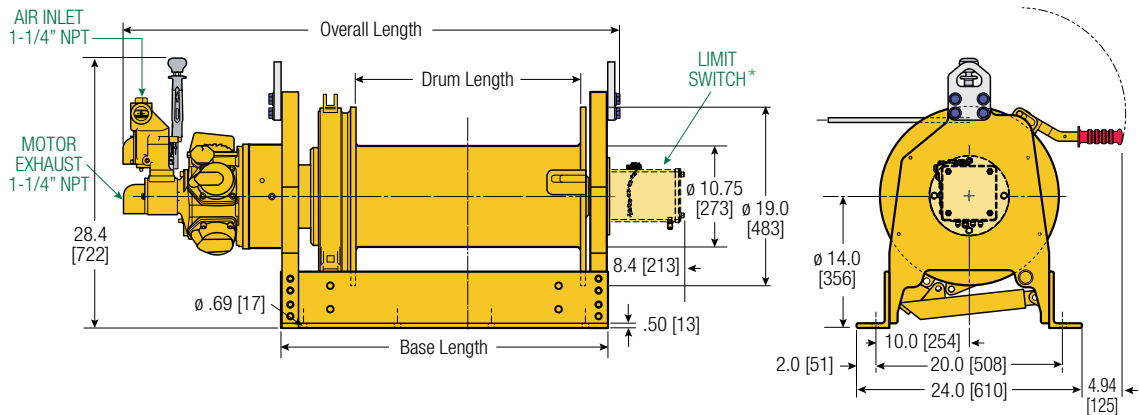
Force Five Infinity Utility Air Winches

FA2i Dimension Drawings - 4,400 lbs (2000 kg)

FA2i-12**1

FA2i-24**1

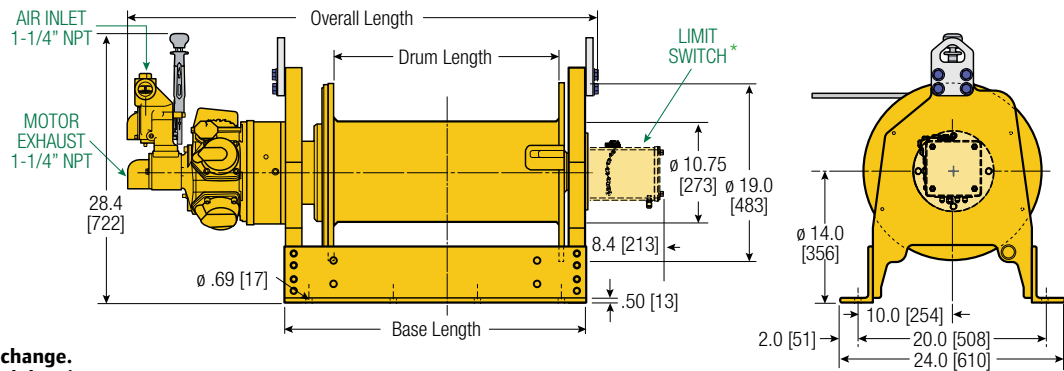
- (MX) = Manual drum brake only
(MK) = Manual drum & auto disc brakes
(AK) = Automatic drum & auto disc brake



FA2i-12XK1

FA2i-24XK1

- (XK) = Disc brake only
Dimensions shown are inches.
Dimensions in Brackets [] are mm.



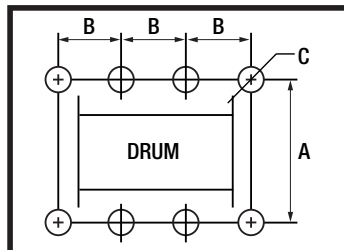
Dimensions are subject to change.
Contact factory for certified drawings.

Dimensions: FA2i and Bolt Down Pattern

Drum Length		Overall Length				Base Length				Bolt Down "B" Dimension			
		Drum Brake Only (MX)		Disc Brake Only (XK)		Both Brakes (MK)		Disc Brake Only (XK)		Drum Only (MX) & Both Brakes (MK)		Disc Brake Only (XK)	
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
12	305	37.2	945	38.1	968	40.8	1036	20.11	511	22.8	579	7.5	191
16	406	41.2	1046	42.1	1069	44.8	1138	24.11	612	26.8	681	6.3	159
20	508	45.2	1148	46.1	1171	48.8	1240	28.11	714	30.8	782	7.8	197
24	610	49.2	1250	50.1	1273	52.8	1341	32.11	816	34.8	884	9.0	229

Bolt Down Pattern

"A" = 20" [508mm]
"B" = See above chart
"C" = 0.69" [18mm]
Bolt Hole Inside Diameter



Drum Length		Total Number of Holes	
		Disc Brake Only (XK)	Drum Only (MX) & Both Brakes (MK)
in	mm		
12	305	6	6
16	406	8	8
20	508	8	8
24	610	8	8

NOTE: * Limit Switches standard on -CE versions only.

Force Five Infinity Utility Air Winches

FA2.5i Dimension Drawings - 5,000 lbs (2273 kg)

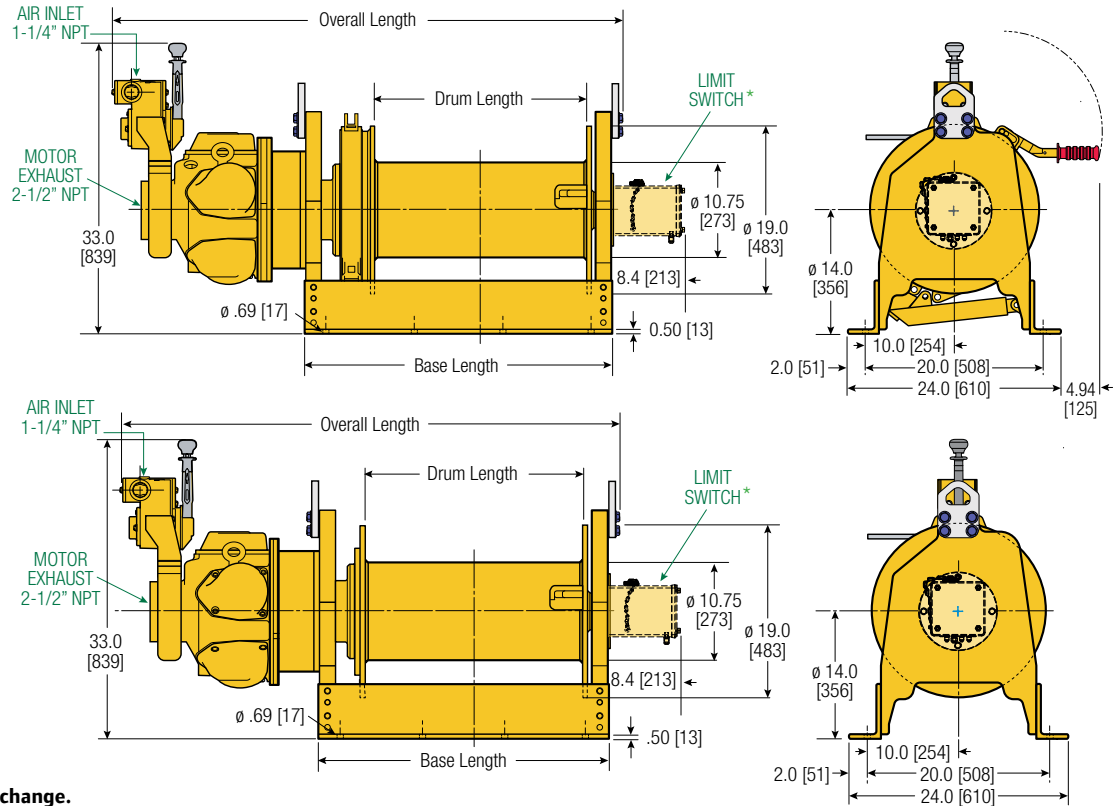
FA2.5i-12**1

FA2.5i-24**1

(MX) = Manual drum
brake only

(MK) = Manual drum &
auto disc brakes

(AK) = Automatic drum &
auto disc brake



FA2.5i-12XK1

FA2.5i-24XK1

(XK) = Disc brake only

Dimensions shown are inches.
Dimensions in Brackets []
are mm.

Dimensions are subject to change.
Contact factory for certified drawings.

Dimensions: FA2.5i and Bolt Down Pattern

Drum Length in mm	Overall Length				Base Length				Bolt Down "B" Dimension			
	Drum Brake Only (MX) in mm	Disc Brake Only (XK) in mm	Both Brakes (MK) in mm		Disc Brake Only (XK) in mm	Drum Only (MX) & Both Brakes (MK) in mm			Disc Brake Only (XK) in mm	Drum Only (MX) & Both Brakes (MK) in mm		
8 203	38.8 986	39.2 996	41.8 1062		16.11 409	18.8 478			6.0 152	7.0 178		
12 305	42.8 1087	43.2 1097	45.8 1163		20.11 511	22.8 579			8.0 203	9.0 229		
16 406	46.8 1189	47.2 1199	49.8 1265		24.11 612	26.8 681			7.0 178	7.5 191		
20 508	50.8 1290	51.2 1300	53.8 1367		28.11 714	30.8 782			8.0 203	9.0 229		
24 610	54.8 1392	55.2 1402	57.8 1468		32.11 816	34.8 884			9.0 229	10.0 254		

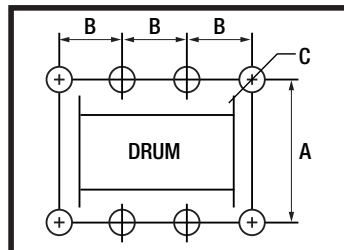
Bolt Down Pattern

"A" = 20" [508mm]

"B" = See above chart

"C" = 0.69" [18mm]

Bolt Hole Inside Diameter



Drum Length in mm		Total Number of Holes	
		Disc Brake Only (XK)	Drum Only (MX) & Both Brakes (MK)
8	203	6	6
12	305	6	6
16	406	8	8
20	508	8	8
24	610	8	8

NOTE: * Limit Switches standard on -CE versions only.

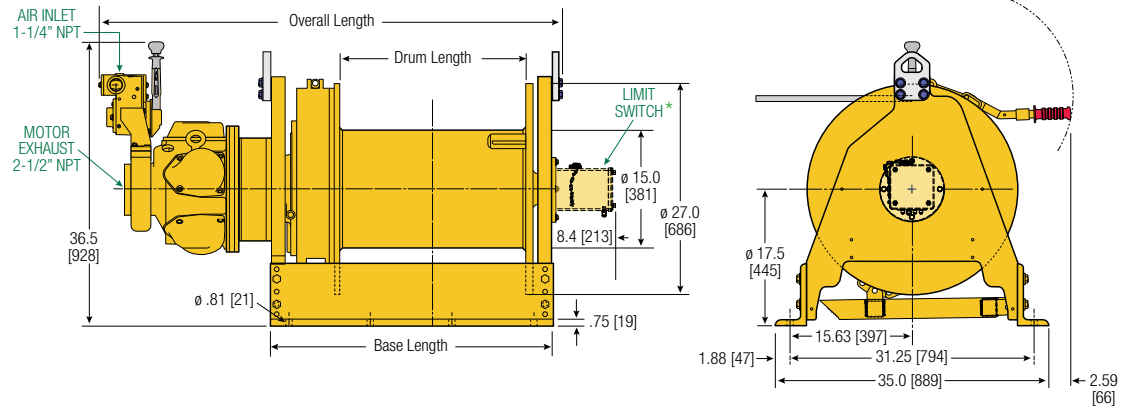
Force Five Infinity Utility Air Winches

FA5i Dimension Drawings - 11,000 lbs (5000 kg)

FA5i-16**1

FA5i-24**1

(MX) = Manual drum
brake only
(MK) = Manual drum &
auto disc brakes
(AK) = Automatic drum &
auto disc brake

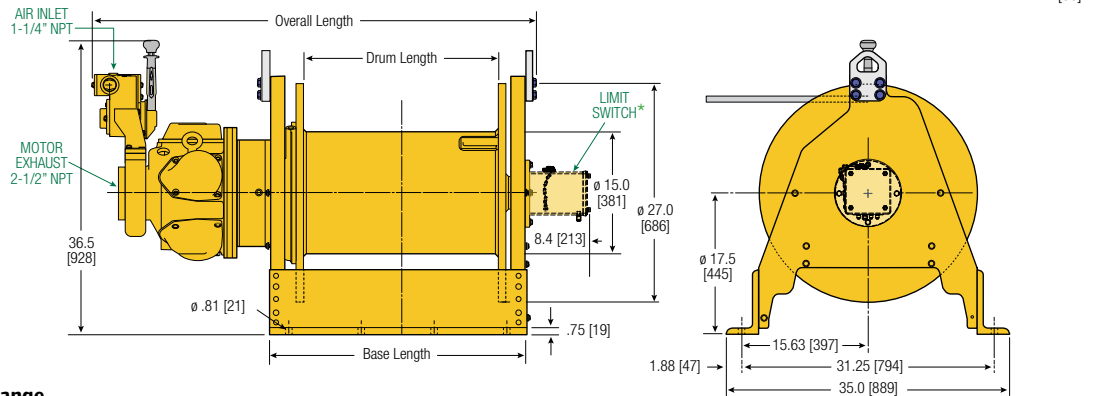


FA5i-16XK1

FA5i-24XK1

(XK) = Disc brake only

Dimensions shown are inches.
Dimensions in Brackets []
are mm.



Dimensions are subject to change.
Contact factory for certified drawings.

Dimensions: FA5i and Bolt Down Pattern

Drum Length in mm		Overall Length						Base Length				Bolt Down "B" Dimension			
		Drum Brake Only (MX)		Disc Brake Only (XK)		Both Brakes (MK)		Disc Brake Only (XK)		Drum Only (MX) & Both Brakes (MK)		Disc Brake Only (XK)		Drum Only (MX) & Both Brakes (MK)	
		in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
16	406	48.6	1234	47.4	1204	51.6	1311	23.84	605	28.34	720	6.25	159	9.0	229
20	508	52.6	1336	51.4	1306	55.6	1412	27.84	707	32.34	821	8.5	216	10.0	254
24	610	56.6	1438	55.4	1407	59.6	1514	31.84	809	36.34	923	9.0	229	10.5	267
30	762	62.6	1590	61.4	1560	65.6	1666	37.84	961	42.34	1075	12.0	305	10.0	254
36	914	68.6	1742	67.4	1712	71.6	1819	43.84	1114	48.34	1228	14.0	356	11.0	279

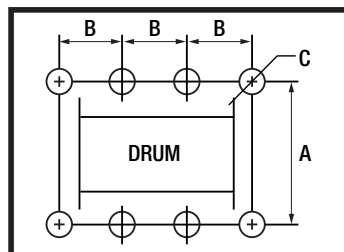
Bolt Down Pattern

"A" = 31.25" [794mm]

"B" = See above chart

"C" = 0.81" [21mm]

Bolt Hole Inside Diameter



Drum Length in mm		Total Number of Holes	
		Disc Brake Only (XK)	Drum Only (MX) & Both Brakes (MK)
16	406	6	6
20	508	8	8
24	610	8	8
30	762	8	10
36	914	8	10

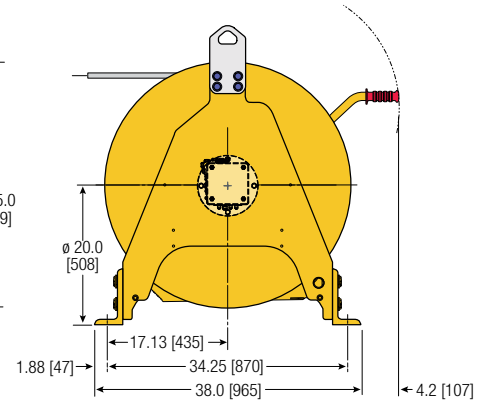
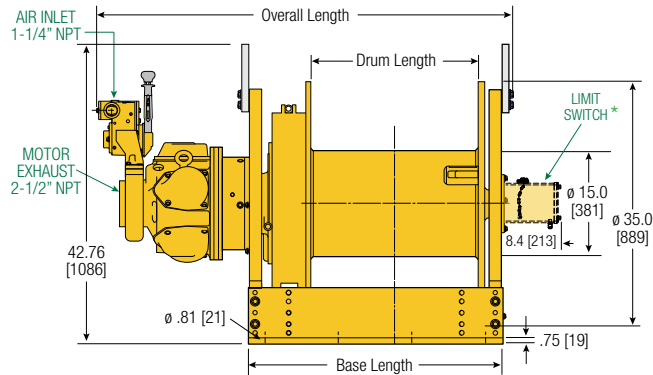
NOTE: * Limit Switches standard on -CE versions only.

Force Five Infinity Utility Air Winches

FA5Ti Dimension Drawings - 8,400 lbs (3818 kg)

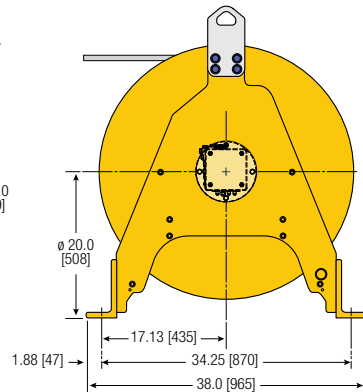
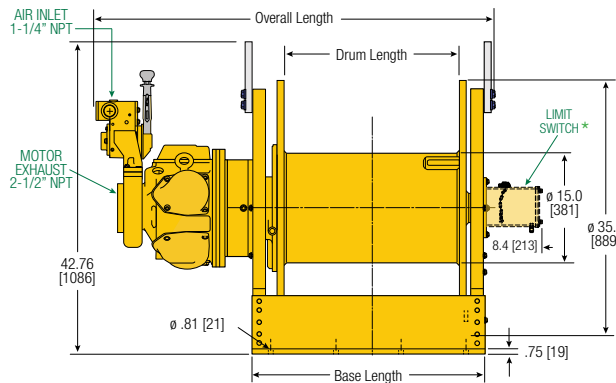
FA5Ti-16**1
FA5Ti-24**1

(MX) = Manual drum
brake only
(MK) = Manual drum &
auto disc brakes
(AK) = Automatic drum &
auto disc brake



FA5Ti-16XK1
FA5Ti-24XK1

(XK) = Disc brake only
Dimensions shown are inches.
Dimensions in Brackets []
are mm.



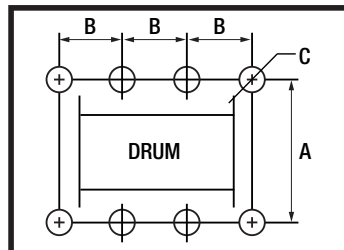
Dimensions are subject to change.
Contact factory for certified drawings.

Dimensions: FA5Ti and Bolt Down Pattern

		Overall Length				Base Length				Bolt Down "B" Dimension			
Drum Length		Drum Brake Only (MX)		Disc Brake Only (XK)		Both Brakes (MK)		Disc Brake Only (XK)		Drum Only (MX) & Both Brakes (MK)		Disc Brake Only (XK)	
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
16	406	48.6	1234	47.4	1204	51.6	1311	23.84	605	28.34	720	6.25	159
20	508	52.6	1336	51.4	1306	55.6	1412	27.84	707	32.34	821	8.5	216
24	610	56.6	1438	55.4	1407	59.6	1514	31.84	809	36.34	923	9.0	229
30	762	62.6	1590	61.4	1560	65.6	1666	37.84	961	42.34	1075	12.0	305
36	914	68.6	1742	67.4	1712	71.6	1819	43.84	1114	48.34	1228	14.0	356

Bolt Down Pattern

"A" = 34.25" [870mm]
"B" = See above chart
"C" = 0.81" [21mm]
Bolt Hole Inside Diameter



		Total Number of Holes	
Drum Length		Disc Brake Only (XK)	Drum Only (MX) & Both Brakes (MK)
in	mm		
16	406	6	6
20	508	8	8
24	610	8	8
30	762	8	10
36	914	8	10

NOTE: * Limit Switches standard on -CE versions only.

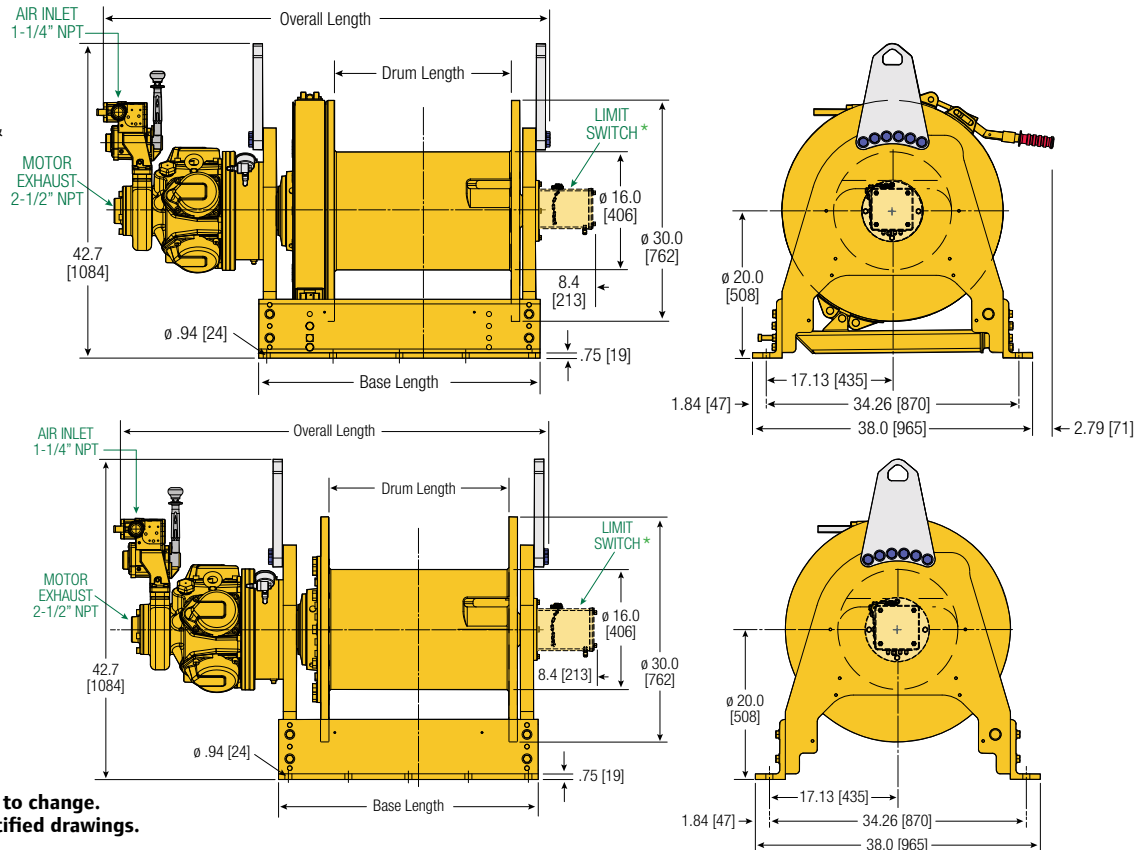
Force Five Infinity Utility Air Winches

FA7i Dimension Drawings - 15,400 lbs (7000 kg)

FA7i-24**1

FA7i-36**1

(MX) = Manual drum
brake only
(MK) = Manual drum &
auto disc brakes
(AK) = Automatic drum &
auto disc brake



Dimensions are subject to change.
Contact factory for certified drawings.

Dimensions: FA7i and Bolt Down Pattern

Drum Length in mm	Overall Length				Base Length				Bolt Down "B" Dimension			
	Drum Brake Only (MX) in mm	Disc Brake Only (XK) in mm	Both Brakes (MK) in mm		Disc Brake Only (XK) in mm	Drum Only (MX) & Both Brakes (MK) in mm			Disc Brake Only (XK) in mm	Drum Only (MX) & Both Brakes (MK) in mm		
20 508	53.8 1367	53.4 1356	56.8 1443		30.63 778	34.19 868			9.0 229	8.0 203		
24 610	57.8 1468	57.4 1458	60.8 1544		34.63 880	38.19 970			8.0 203	9.0 229		
30 762	63.8 1621	63.4 1610	66.8 1697		40.63 1032	44.19 1122			9.5 241	10.0 254		
36 914	69.8 1773	69.4 1763	72.8 1849		46.63 1184	50.19 1275			8.5 216	11.0 279		
42 1067	75.8 1925	75.4 1915	78.8 2002		52.63 1337	56.19 1427			10.0 254	10.0 254		

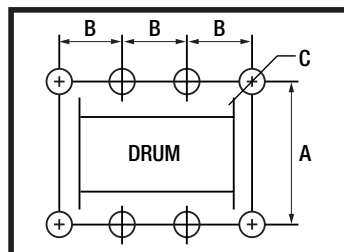
Bolt Down Pattern

"A" = 34.25" [870mm]

"B" = See above chart

"C" = 0.94" [24mm]

Bolt Hole Inside Diameter



Total Number of Holes			
Drum Length in mm		Disc Brake Only (XK)	Drum Only (MX) & Both Brakes (MK)
20 508		8	10
24 610		10	10
30 762		10	10
36 914		12	10
42 1067		12	12

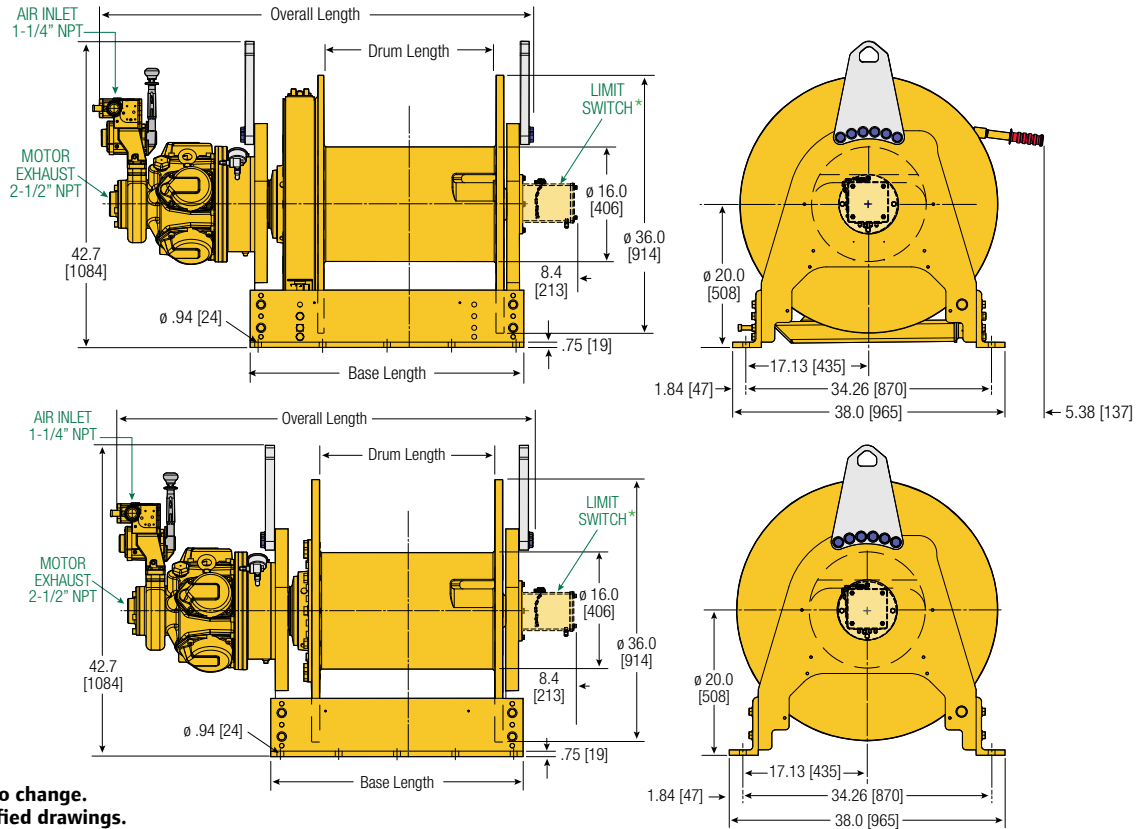
NOTE: * Limit Switches standard on -CE versions only.

Force Five Infinity Utility Air Winches

FA7Ti Dimension Drawings - 12,600 lbs (5727 kg)

FA7Ti-24**1
FA7Ti-36**1

(MX) = Manual drum
brake only
(MK) = Manual drum &
auto disc brakes
(AK) = Automatic drum &
auto disc brake



FA7Ti-24XK1
FA7Ti-36XK1

(XK) = Disc brake only

Dimensions shown are inches.
Dimensions in Brackets []
are mm.

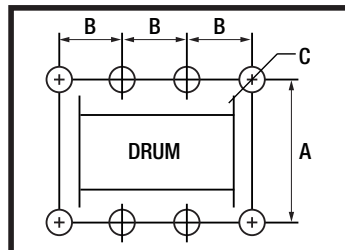
Dimensions are subject to change.
Contact factory for certified drawings.

Dimensions: FA7Ti and Bolt Down Pattern

		Overall Length				Base Length				Bolt Down "B" Dimension			
Drum Length		Disc Brake Only (MX)		Disc Brake Only (XK)		Both Brakes (MK)		Disc Brake Only (XK)		Disc Brake Only (XK)		Drum Only (MX) & Both Brakes (MK)	
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
20	508	53.8	1367	53.4	1356	56.8	1443	30.63	778	9.0	229	8.0	203
24	610	57.8	1468	57.4	1458	60.8	1544	34.63	880	8.0	203	9.0	229
30	762	63.8	1621	63.4	1610	66.8	1697	40.63	1032	9.5	241	10.0	254
36	914	69.8	1773	69.4	1763	72.8	1849	46.63	1184	8.5	216	11.0	279
42	1067	75.8	1925	75.4	1915	78.8	2002	52.63	1337	10.0	254	10.0	254

Bolt Down Pattern

"A" = 34.25" [870mm]
"B" = See above chart
"C" = 0.94" [24mm]
Bolt Hole Inside Diameter



		Total Number of Holes	
Drum Length		Disc Brake Only (XK)	Drum Only (MX) & Both Brakes (MK)
in	mm		
20	508	8	10
24	610	10	10
30	762	10	10
36	914	12	10
42	1067	12	12

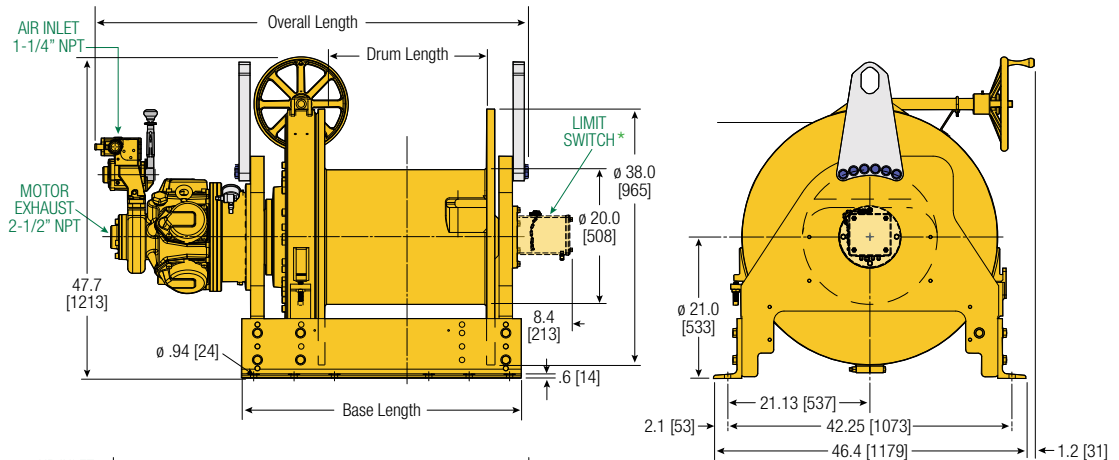
NOTE: * Limit Switches standard on -CE versions only.

Force Five Infinity Utility Air Winches

FA10i Dimension Drawings - 22,000 lbs (10000 kg)

FA10i-241**
FA10i-401**

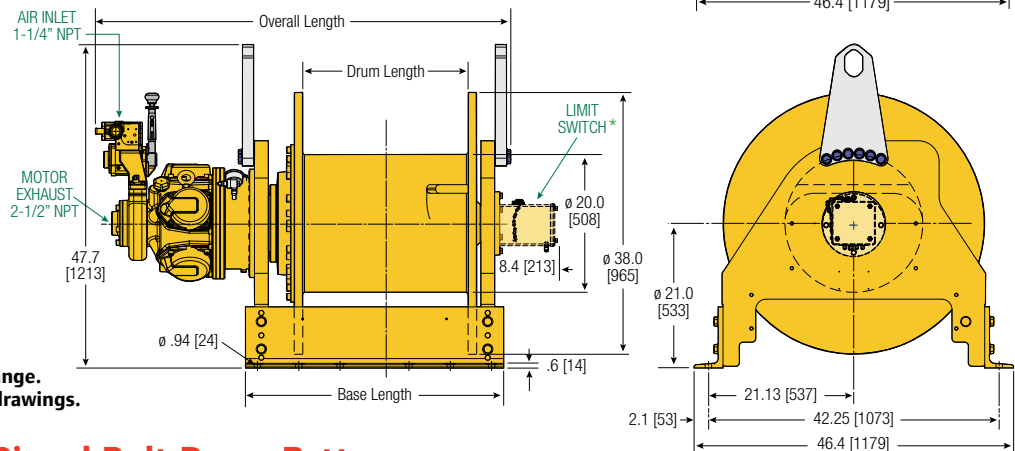
(MX) = Manual drum
brake only
(MK) = Manual drum &
auto disc brakes
(AK) = Automatic drum &
auto disc brake



FA10i-24XK1
FA10i-40XK1

(XK) = Disc brake only

Dimensions shown are inches.
Dimensions in Brackets []
are mm.



Dimensions are subject to change.
Contact factory for certified drawings.

Dimensions: FA10i and Bolt Down Pattern

Drum Length in mm	Overall Length				Base Length		Bolt Down "B" Dimension			
	Drum Brake Only (MX) in mm	Disc Brake Only (XK) in mm	Both Brakes (MK) in mm		Disc Brake Only (XK) in mm	Drum Only (MX) & Both Brakes (MK) in mm	Disc Brake Only (XK) in mm	Drum Only (MX) & Both Brakes (MK) in mm		
24 610	63.6 1615	59.8 1519	63.8 1621		37.5 952	41.5 1054	6.0 152	6.0 152		
30 762	69.6 1768	65.8 1671	69.8 1773		43.5 1105	47.5 1207	8.0 203	8.0 203		
36 914	75.6 1920	71.8 1824	75.8 1925		49.5 1257	53.5 1359	8.0 203	8.0 203		
40 1067	79.6 2022	75.6 1920	79.8 2027		53.5 1359	57.5 1461	8.0 203	8.0 203		

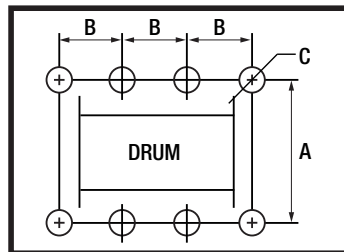
Bolt Down Pattern

"A" = 34.25" [870mm]

"B" = See above chart

"C" = 0.94" [24mm]

Bolt Hole Inside Diameter



Drum Length in mm	Total Number of Holes	
	Disc Brake Only (XK)	Drum Only (MX) & Both Brakes (MK)
24 610	6	6
30 762	6	6
36 914	6	6
40 1067	6	6

NOTE: * Limit Switches standard on -CE versions only.

Force Five Infinity Guideline & Podline Air Winches

FA7Ti-GL & PL Features & Specifications

GL - 3,400 lbs (1545 kg), PL - 10,200 lbs (4636 kg)

As offshore oil drilling heads into deeper waters, Ingersoll Rand Guideline and Podline winches are prepared to follow.

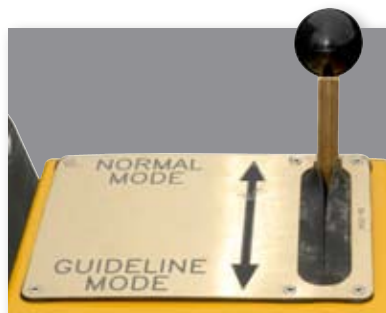
These specially configured versions of the FA7Ti tall flange air winch feature:

- Top layer ratings insure "lift at any layer" capability.
- 42 inch (1067 mm) drum flange height and length for maximum wire rope capacity. Other drum flange lengths are available.
- Marine 812 ("P" option) corrosion resistant marine finish paint.
- The locking dog is easy to operate, trouble free, and maintenance friendly.
- Winch mounted throttle for precise load control.
- Internal oil bath, automatic disc brake is protected from the elements.

Specific to the FA7TiGL Guideline winch:

- A lower gear ratio and switching valve arrangement with pressure regulator preset for unmanned lowering of sub-sea equipment.
- In guideline mode, a pressure regulator can be set to adjust the tension.
- Simply flipping a lever switches the winch from utility to guideline mode. In this mode, the winch can be overhauled at speeds up to 90 fpm (28 m/min).

Operations and Safety Manuals
can be downloaded from
irtechpubs.com free of charge.



Lift Ratings at 5:1 Design Factor (Performance at 6.3 Bar - 90 PSI at air inlet when winch is operating)

Performance at 25.2 HP (1.86 kW) (Performance at 25.2 HP is for a unit when it is operating)																	
Model #	hp	Top Layer				First Layer				Average Air Consumption ⁽¹⁾	Sound Level ⁽²⁾	Inlet Size	Exhaust Size	Net Weight			
		Rated Capacity		Speed		Speed at Rated Capacity		Stall Pull						NPT	NPT	lbs	kg
		lbs	kg	ft/min	m/min	ft/min	m/min	lbs	kg								
FA7Ti-GL42XK1	25.2	3,400	1542	152	46	159	48	9,200	4173	750	21	97	1-1/4"	2-1/2"	2,981	1352	
FA7Ti-PL42XK1	25.2	10,200	4627	60	18	41	12	35,946	16305	750	21	97	1-1/4"	2-1/2"	2,850	1293	

(1) Average Air Consumption is at rated load and speed at top layer (2) With optional muffler

Standard Drum Wire Rope Storage Capacity

Capacities represent tightly wound wire rope. Recommended working capacity is 80% of values shown.

Series	Rated capacity		Rope Diameter		Min Break* Strength		Accumulated rope capacity in layers / feet and meters					
	lbs	kgs	in	mm	lbs	kgs	1st		Mid		Top	
							feet	m	feet	m	feet	m
FA7Ti-GL42XK1	3,400	1542	1/2	13	17,000	7710	359	107	6,897	1881	16,925	4825
			5/8	16	17,000	7710	288	87	4,301	1303	10,372	3147
			3/4	20	17,000	7710	241	70	2,909	856	7,480	2042
			7/8	22	17,000	7710	208	62	2,234	675	5,262	1592
FA7Ti-PL42XK1	10,200	4627	1/2	13	51,000	23135	359	107	6,897	1881	16,925	4825
			5/8	16	51,000	23135	288	87	4,301	1303	10,372	3147
			3/4	20	51,000	23135	241	70	2,909	856	7,480	2042
			7/8	22	51,000	23135	208	62	2,234	675	5,262	1592

* NOTE: The Minimum Required Breaking Strength for the wire rope needs to be the Rated Capacity multiplied by the Design Factor.
Example: for the FA7Ti-GL42XK1 (with a 5:1 Design Factor) 3,400 x 5 = 17,000 lbs.

Force Five Infinity Guideline & Podline Air Winches

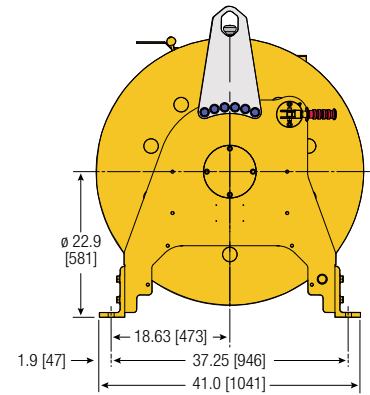
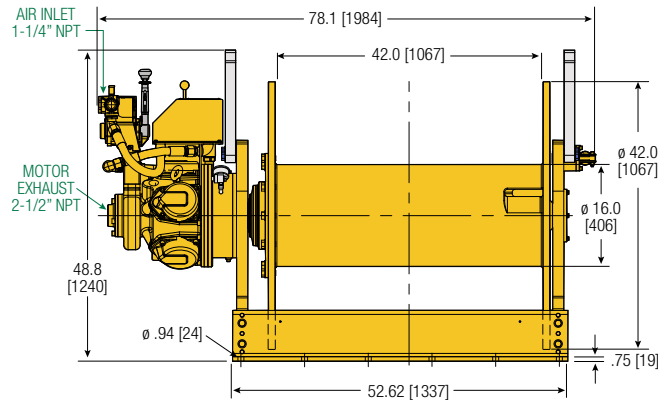
FA7Ti-GL & PL Dimension Drawings

GL - 3,400 lbs (1545 kg), PL - 10,200 lbs (4636 kg)

FA7Ti-GL42XK1

(XK) = Disc brake only

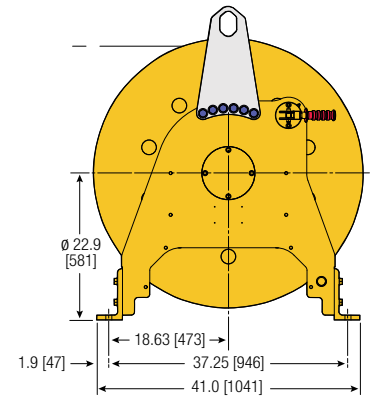
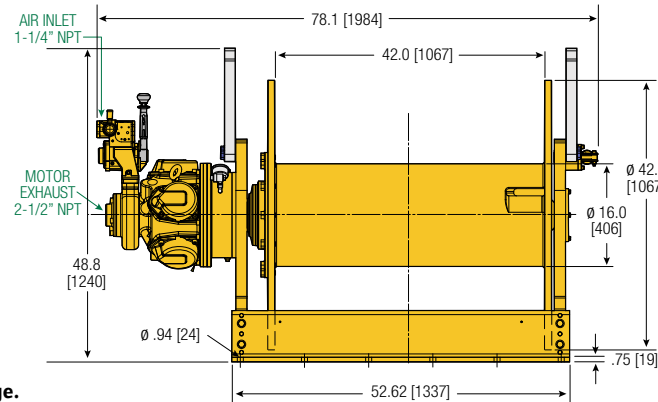
Dimensions shown are inches.
Dimensions in Brackets []
are mm.



FA7Ti-PL42XK1

(XK) = Disc brake only

Dimensions shown are inches.
Dimensions in Brackets []
are mm.



Dimensions are subject to change.
Contact factory for certified drawings.



FA7Ti-GL42XK1G
with optional
drum guard

Dimensions: FA7Ti-GL42XK1 & FA7Ti-PL42XK1 Bolt Down Pattern

Bolt Down Pattern

"A" = 78.1" [1984mm]

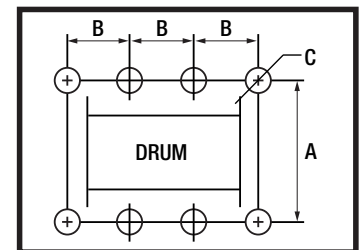
"B" = 10.0" [254]

"C" = 0.94" [24mm]

Bolt Hole Inside Diameter

Total Number of Holes

12



Force Five Infinity Man Rider™ Winches



Ingersoll Rand's offering of dedicated and dual purpose (utility & personnel lifting) Man Rider™ winches are known worldwide as the standard for meeting the toughest personnel lifting requirements in the industry.

Ingersoll Rand's extensive offering includes:

- 330 lb (150 kg) dedicated air powered Man Riders™ for use offshore
- Dual rated (personnel and utility lifting) air powered Man Riders™ for use offshore

These rugged, oilfield tough winches have been design reviewed by American Bureau of Shipping (ABS) and Det Norske Veritas (DNV). Fully *Type Approved* models to meet DNV - OS-E101 and ABS - CDS are available upon request. Infinity winches also meet UK HSE and PSA regulations for personnel lifting applications.

Whether it is a dedicated Man Rider™ for lifting people in harnesses or boatswain's chairs, or lifting people and also lifting material, Ingersoll Rand has a winch for the application.

Force Five Infinity Dedicated Man Rider™ Air Winch

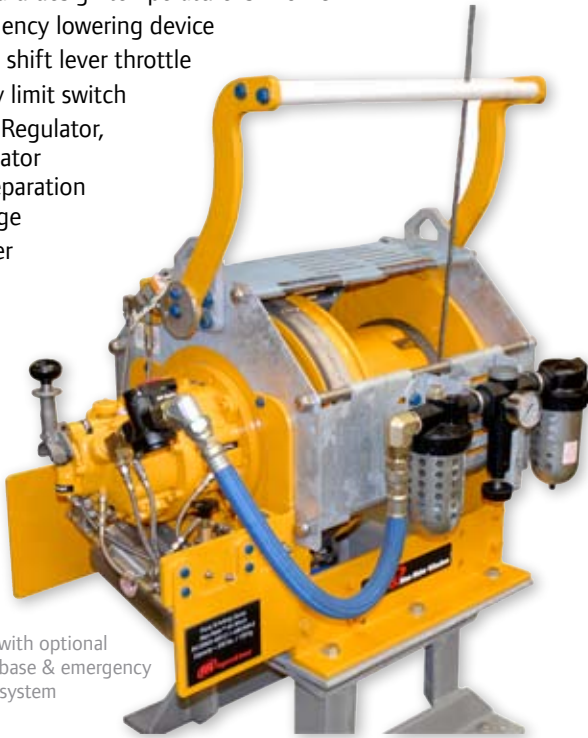
FA150KGi Features & Specifications

Standard Features

FA150KGi Man Rider™ winches have been designed to meet the requirements of the Oil Exploration Industry, particularly those specifications of the Norwegian Petroleum Directorate and DNV. They have Design Approval by Det Norske Veritas (DNV) and the American Bureau of Shipping (ABS). Fully Type Approved units available by ordering "N4" (ABS) or "N5" (DNV) options.

It remains the user's responsibility to determine the suitability of this product for any particular use and to check for compliance with applicable regulations.

- Automatic internal disc brake
- Automatic drum brake
- Slack rope detector
- Emergency stop & Overload limiter
- Drum guard
- Press roller
- Standard design temperature is -20° C
- Emergency lowering device
- Lift to shift lever throttle
- Rotary limit switch
- Filter, Regulator, Lubricator air preparation package
- Muffler
- 10:1 design factor
- 18:1 D/d ratio on wire rope
- Marine 812 finish paint "P" standard
- CE compliance



Pictured with optional pedestal base & emergency lowering system

Options

- Type Approved models available certified to:
 - » DNV-OS-E101 Drilling Plant - October 2009, or
 - » ABS Certification of Drilling Systems - March 2011
- Manual rope guide
- Marine paint systems
- Pedestal base
- Stainless steel hoses
- Emergency lowering system



Man Rider™ Lift Ratings at 10:1 Design Factor (Performance at 6.3 Bar - 90 PSI at air inlet when winch is operating)

Model #	hp	Top Layer				First Layer		Average Air Consumption ⁽¹⁾		Sound Level ⁽²⁾	Inlet Size NPT	Exhaust Size NPT	Net Weight	
		Rated Capacity		Speed		Speed at Rated Capacity							lbs	kg
		lbs	kg	ft/min	m/min	ft/min	m/min	ft ³ /min	m ³ /min	db(A)				
FA150KGiMR12A1-CE	2	330	150	95	29	82	25	50	14	89	3/4"	3/4"	750	340

(1) Average Air Consumption is at rated load and speed at top layer

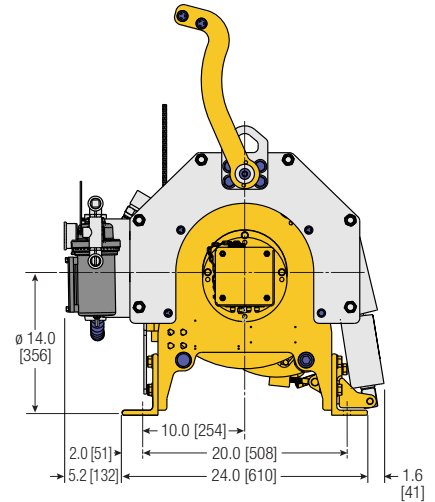
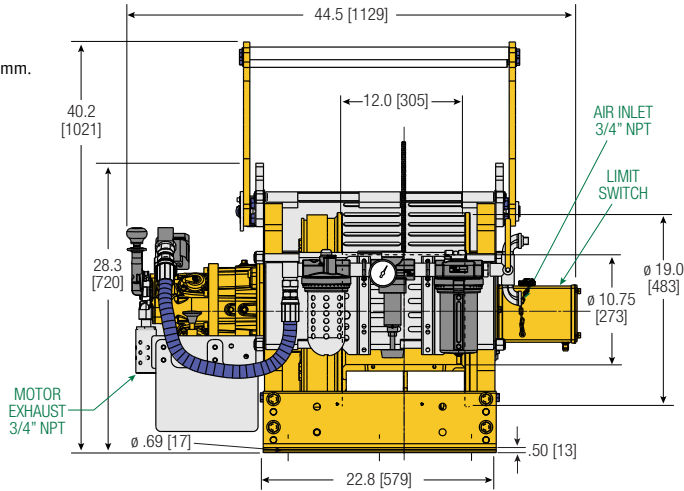
(2) With muffler

Force Five Infinity Dedicated Man Rider™ Air Winch

FA150KGi Dimension Drawings - 330 lbs (150 kg)

FA150KGi

Dimensions shown are inches.
Dimensions in Brackets [] are mm.

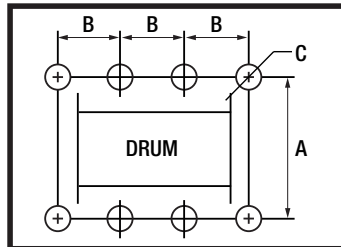


Dimensions are subject to change.
Contact factory for certified drawings.

Dimensions: FA150KGi-MR Bolt Down Pattern

Bolt Down Pattern

"A" = 20.0" [508mm]
"B" = 9.0" [229]
"C" = 0.69" [18mm]
Bolt Hole Inside Diameter
Total Number of Holes
6



Operations and Safety Manuals
can be downloaded from irtechpubs.com
free of charge.



Pictured
with optional
pedestal base

Standard Drum Wire Rope Storage Capacity

Capacities represent tightly wound wire rope. Recommended working capacity is 80% of values shown.

Imperial												
Series	Rated capacity lbs	Rope Diameter in	Min Break* Strength lbs	Accumulated rope capacity in feet / number of layers								
				1	2	3	4	5	6	7	8	9
FA150KGi-12	330	7/16	3,300	77	161	249	344	445	551	663	780	904
Metric												
Series	kgs	mm	kgs	Accumulated rope capacity in meters / number of layers								
				1	2	3	4	5	6	7	8	9
FA150KGi-12	150	10	1500	26	54	84	115	148	183	220	259	299

* **NOTE:** The Minimum Required Breaking Strength for the wire rope needs to be the Rated Capacity multiplied by the Design Factor.
Example: for the FA150KGi (with a 10:1 Design Factor) 330 x 10 = 3,300 lbs.

Force Five Infinity Dedicated Man Rider™ Air Winch

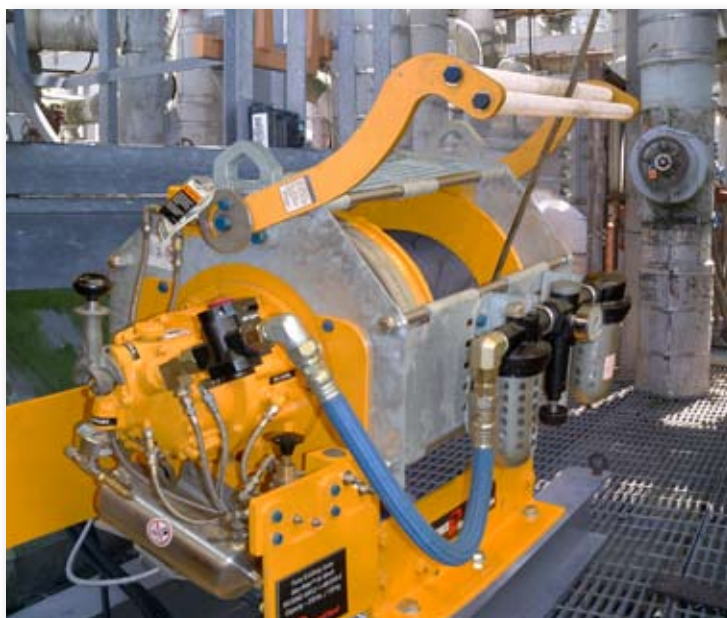
FA150KGi Model Identification Codes

How to order standard equipment

Specify complete model code as shown. To order options, use the option code in the option table and add as a suffix to the model code.

Example: FA150KGiMR12A1-7ABHR-CE

FA	150KGi	MR	12	A	1	-	7ABHR-CE
<u>Series</u>	<u>Personnel capacity lbs (kg)</u>	<u>Man Rider™</u>	<u>Drum length</u>		<u>Control</u>		<u>Options</u>
FA = Air powered	150KGi = 330 (150)	MR = Man Rider™	12 = 12 inch		1 = Std. winch mounted		7 = Drum grooving; specify rope size in sixteenths, e.g., 7 = 7/16" A = Drum guard with manual rope guide B = Winch pedestal base H = Stainless steel hose package for limit switch K = Stowage valve kit installed on winch M1 = Material Traceability per DIN 50049/EN10204 Para 2.2 "Typicals" M2 = Material Traceability per DIN 50049/EN10204 Para 3.1b actuals per product as purchased M3 = Material Traceability per DIN 50049/EN10204 Para 3.1b actuals per product as delivered in final condition N4 ⁽¹⁾ = Manufactured under ABS survey N5 ⁽¹⁾ = Manufactured under DNV survey P1 = Marine 812-X paint system P2 = Marine 812-X paint system - isocyanate free R = Emergency lowering system (2 liter bottle) W1 = ABS witness test W2 = DNV witness test W3 = LRS witness test W4 = Client witness of load test
				<u>Brakes</u>			
				A = Automatic drum brake			



(1) For N4 and N5, refer to page 21

Ingersoll Rand strongly recommends using Drum Guards with all winches to prevent inadvertent contact with winch moving parts.

Drum Guards are standard for -CE and may be compulsory in some world regions.

Owners and users should always check local regulations and standards before putting a particular product to use.



(ELD)

Tip: Emergency lowering.

Per regulatory requirements every FA150KGi winch is equipped with an Emergency Lowering Device (ELD) to allow an (end user supplied) auxiliary air supply to be attached to the winch to facilitate emergency lowering in the event the main air supply is lost.

Option "R" (pictured above) is a complete Emergency Lowering System which includes an accumulator tank that serves as the air source during emergency lowering. No end user provided air is required to lower the load and the accumulator is charged during normal winch operation.

Force Five Infinity Dedicated Man Rider™ Air Winch

FA150KGi “N4” & “N5” - ABS & DNV Regulatory Requirements

Why do end-users request compliance with a 3rd party standard?

In certain cases end-users require their winches to be manufactured in compliance with an independent 3rd party standard to insure the equipment provider has undergone a rigorous review of their quality and manufacturing system processes. 3rd party agencies such as American Bureau of Shipping (ABS) and Det Norske Veritas (DNV) have a long history of expertise in overseeing the offshore oil industry and are, by definition, not affiliated or influenced by any equipment manufacturer. The independent standards created by these agencies contain very detailed criteria for equipment design as well as the mechanical and inspection requirements a unit must possess to receive certification. By choosing an independent agency the end-user gains a higher level of confidence that the equipment purchased will be properly designed and manufactured for its intended use.

What 3rd party options are available?

For your convenience Ingersoll Rand has created option codes to indicate compliance with the two regulations most frequently requested for our winches; “N4” for ABS – “Certification of Drilling Systems” and “N5” for DNV – “OS-E101, Drilling Plant”. Selecting the “N4” or “N5” option code only insures that the winch (as delivered) will meet the requirements of the applicable Standard. Ultimately it is up to the end-user to choose which standard best suits their specific requirements. (Note - Ingersoll Rand will review additional 3rd party standards / requirements upon request.)

What does the “N4” option consist of?

The “N4” option provides a machine that is fully compliant with the design, mechanical, and documentation requirements of ABS Certification of Drilling Systems (July 2009). A general **Type Approval Certificate** is provided confirming ABS’s review of the winch’s design and mechanical features. In addition a specific ABS Unit Certificate (tracked by the winch’s serial number) will be issued upon successful completion of ABS’s onsite survey. This survey is required by ABS to document various stages of a winch’s manufacture such as charpy testing (where applicable), weld non-destructive examination, material traceability and unit load testing.

What does the “N5” option consist of?

Ingersoll Rand’s “N5” option provides a machine that is fully compliant with all the design, mechanical, and documentation requirements of Det Norske Veritas (DNV) Offshore Standard OS-E101, Drilling Plant (October 2009). A general **Type Approval Certificate** is provided confirming DNV’s review of the winch’s design and mechanical features. In addition, a specific DNV Product Certificate (tracked by the winch’s serial number) will be issued upon successful completion of DNV’s onsite survey. This survey is required by DNV to document various stages of a winch’s manufacture such as charpy testing (where applicable), weld non-destructive examination, material traceability and unit load testing. Note: a Product Certificate is required by DNV in order to meet its additional requirements for DNV “DRILL”, or “CRANE” Classifications where most drilling operations occur.

Standard Features Matrix

Option code	N4 & CE compliant	N5 & CE compliant
Design factor	10:1	10:1
Manufactured per	ABS Certification of Drilling Systems & European Machinery Directive / EN14492-1	DNV-OS-E101 Drilling Plant October 2009 & European Machinery Directive / EN14492-1
Brakes (as minimum)	Auto drum, Auto disc	Auto drum, auto disc
Slack rope detector	Yes	Yes
Emergency stop and overload limiter	Yes	Yes
Drum guard	Yes	Yes
Press roller	Yes	Yes
Emergency lowering device	Yes	Yes
Lift to shift throttle	Yes	Yes
Rotary limit switch	Yes	Yes
Filter, regulator, and lubricator air preparation package	Yes	Yes
Muffler	Yes	Yes
Design Temp (tD)	-20° C	-20° C
Charpy Tests	Yes	Yes
Traceability	Yes	Yes
Weld NDE	Yes	Yes
Manufactured under Survey	Yes	Yes
Design Assessment/Review	Yes	Yes
Unit Certification/Product Certificate (assigned to equipment’s serial number)	Yes	Yes
Type Approval Certificate	Yes to ABS-CDS	Yes to DNV-OS-E101
3rd Party Witness of Load Test	Yes	Yes
Data Book	Yes	Yes

Force Five Infinity Dual Rated Offshore Man Rider™ Air Winches Features

Ingersoll Rand's offering of dedicated and dual purpose (utility & personnel lifting) Man Rider™ winches are known worldwide as the standard for meeting the toughest personnel lifting requirements in the industry.

These rugged, oilfield tough winches have been design reviewed by American Bureau of Shipping (ABS) and Det Norske Veritas (DNV). Fully *Type Approved* models to meet DNV - OS-E101 and ABS - CDS are available upon request. Infinity winches also meet UK HSE and PSA regulations for personnel lifting applications.

Meeting world standards. Certified to those standards.

Drilling rigs and platforms are used all over the world and come under numerous and diverse regulations. Ingersoll Rand builds to regional and global specifications and our winches can be certified by Det Norske Veritas (DNV), and the American Bureau of Shipping (ABS).

Type Approval

A comprehensive design review by a third party addresses intended service, applications, ratings, design calculations, load bearing components, product specifications, and service restrictions or limitations. Plant surveys verify quality control procedures. A **Type Approval** certificate is then issued for specific units.



What features make a winch a Man Rider™

- Minimum design factors of 8:1
- Dual Brakes
- Drum Guards
- Design Preview Certs and Data Books upon request (when requested at time of order)

And, depending on where in the world it will be used

- - CE certifications
- Overload devices
- Slack wire detectors
- Limit switches
- Emergency shut-offs
- Emergency lowering devices
- Spooling devices.

Operations and Safety Manuals can be downloaded from irtechpubs.com free of charge.

Force Five Infinity Dual Rated Offshore Man Rider™ Air Winches Specifications & Performance

Man Rider™ Lift Ratings at 8:1 Design Factor (Performance at 6.3 Bar - 90 PSI at air inlet when winch is operating)

Model #	hp	Top Layer				First Layer				Average Air Consumption ⁽¹⁾		Sound Level ⁽²⁾	Inlet Size NPT	Exhaust Size NPT	Net Weight	
		Rated Capacity		Speed		Speed at		Stall Pull								
		lbs	kg	ft/min	m/min	ft/min	m/min	lbs	kg	ft ³ /min	m ³ /min					
FA2i-MR24MK1G	9	3,180	1445	75	23	68	21	9,139	4154	280	8	87	1-1/4"	1-1/4"	925	420
FA2.5i-MR24MK1G	25	3,180	1445	173	53	145	44	10,277	4671	700	20	97	1-1/4"	2-1/2"	1,265	574
FA5i-MR24MK1G	25	6,870	3123	75	23	61	19	23,594	10725	700	20	97	1-1/4"	2-1/2"	2,000	907

Utility Lift Ratings at 5:1 Design Factor (Performance at 6.3 Bar - 90 PSI at air inlet when winch is operating)

FA2i-MR24MK1G	9	4,400	2000	51	16	55	17	9,139	4154	280	8	87	1-1/4"	1-1/4"	925	420
FA2.5i-MR24MK1G	25	5,000	2273	132	40	128	39	10,277	4671	700	20	97	1-1/4"	2-1/2"	1,265	574
FA5i-MR24MK1G	25	11,000	5000	54	16	51	16	23,594	10725	700	20	97	1-1/4"	2-1/2"	2,000	907

(1) Average Air Consumption is at rated load and speed at top layer

(2) With optional muffler

Standard Drum Wire Rope Storage Capacity

Capacities represent tightly wound wire rope. Recommended working capacity is 80% of values shown.

Imperial

Series	Rated capacity lbs	Rope Diameter in	Min Break* Strength lbs	Accumulated rope capacity in feet / number of layers							
				1	2	3	4	5	6	7	8
FA2i-MR24	3,180	1/2	25,440	138	289	450	624	809	1,006	1,214	1,435
FA2.5i-MR24	3,180	1/2	25,440	138	289	450	624	809	1,006	1,214	1,435
FA5i-MR24	6,870	3/4	54,960	128	267	418	581	755	940	1,138	1,346

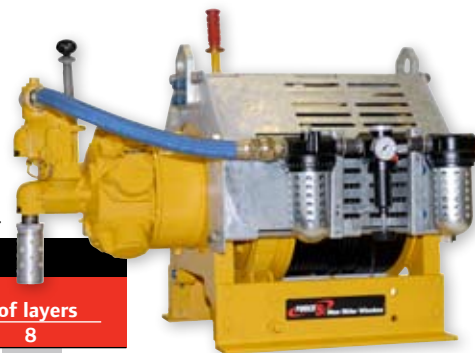
Metric	kgs	mm	kgs	Accumulated rope capacity in meters / number of layers							
FA2i-MR24	1445	13	11560	41	86	135	187	242	301	364	430
FA2.5i-MR24	1445	13	11560	41	86	135	187	242	301	364	430
FA5i-MR24	3123	19	24984	39	81	127	177	230	287	347	410

* NOTE: The Minimum Required Breaking Strength for the wire rope needs to be the Rated Capacity multiplied by the Design Factor.

Example: for the FA2i-MR (with a 8:1 Design Factor) $3,180 \times 8 = 25,440$ lbs.

For additional information on calculating Total Drum Storage Capacity and more, please go to:

Ingersoll Rand Drum Capacity Estimator - <http://www.ingersollrandproducts.com/lifting/winches/drum.htm>



FA2i-MR12MK1G
with Optional
Air Preparation Package

Tip:

It's an accepted fact that regular maintenance is important in keeping any piece of equipment running at its peak performance. What is often overlooked is maintaining the fuel that powers that same piece of equipment. Whether your equipment is powered by gas, diesel, hydraulic, or air, if the fuel's quality is affected by dirt, water, or other contaminants then it is likely you will experience decreased performance and increased maintenance.

An air winch's air supply must be clean, free from moisture and lubricated to ensure optimum motor performance. Foreign particles, moisture and lack of lubrication are the primary causes of premature motor wear and breakdown. Using an air filter, lubricator, regulator, along with a moisture separator will greatly improve overall product performance and reduce unscheduled downtime.

Force Five Infinity Dual Rated Offshore Man Rider™ Air Winches

Model Identification Codes

How to order standard equipment

Specify winch by complete model number as illustrated below. Add options in the order of their listing. Order accessories separately by part number.

Example: FA2.5i-MR24MK1-10GP

FA	2.5i	-	MR	24	M	K	1	-	10GP
Personnel capacity (lbs) 2i = 3,180 2.5i = 3,180 5i = 6,875	Man Rider™ MR = Man Rider™		Drum length⁽¹⁾ 8 = 8 inch 12 = 12 inch 16 = 16 inch 20 = 20 inch 24 = 24 inch (std.) 30 = 30 inch 36 = 36 inch	Drum brake M = Manual drum brake (std.) A = Auto drum brake	Disc brake K = Auto disc (std.)	Control brake 1 = Std. winch mounted 2XX = Remote full flow lever throttle 3XX = Remote pilot pendant throttle 4XX = Remote pilot lever throttle 5XX = Electric over air control XX = Specify hose length in ft	Options 10 = Drum grooving; specify rope size in sixteenths, e.g., 10 = 10/16" or 5/8" B = Extended warranty C1M3 = -20° C ABS C2M3 = -20° C DNV E = Construction cage G = Drum guard (standard) J = Air Line Accessories J1: Filter, J2: Lubricator, J3: Regulator, J4: Strainer, J6: Liquidator M1 = Material Traceability per DIN 50049/EN10204 Para 2.2 "Typicals" M2 = Material Traceability per DIN 50049/EN10204 Para 3.1b actuals per product as purchased M3 = Material Traceability per DIN 50049/EN10204 Para 3.1b actuals per product as delivered in final condition N4 ⁽²⁾ = Manufactured under ABS survey N5 ⁽²⁾ = Manufactured under DNV survey P = Marine 812 finish paint P1 = Marine 812-X paint system P2 = Marine 812-X paint system - isocyanate free S = Rotary limit switch (upper and lower) U = Underwound wire rope takeoff V = Press roller W1 = ABS witness test W2 = DNV witness test W3 = LRS witness test W4 = Client witness of load test Y = Overload protection with E-Stop provided on lever throttle -CE = Compliance with the European Machinery Directive and EN14992-1 for power driven winches		

(1) Standard drum lengths available in inches

Model	8	12	16	20	24	30	36
FA2i-MR	✓	✓	✓	✓	✓		
FA2.5i-MR	✓	✓	✓	✓	✓		
FA5i-MR		✓	✓	✓	✓	✓	✓

See Web site for Drum Storage Calculators

<http://www.ingersollrandproducts.com/lifting/winches/drum.htm>

(2) For N4 and N5, refer to pages 27 & 28

All Man Rider™ winches with the "-CE" option are equipped with the following additional features:

- Overload protection
- Emergency Stop Valve (main air shut-off)
- Exhaust Muffler
- CE Documentation
- Limit Switches

Ingersoll Rand strongly recommends using Drum Guards with all winches to prevent inadvertent contact with winch moving parts.

Drum Guards are standard for -CE and may be compulsory in some world regions.

Owners and users should always check local regulations and standards before putting a particular product to use.

Force Five Infinity Dual Rated Offshore Man Rider™ Air Winches

Dimension Drawings - FA2i-MR24MK1G & FA2.5i-MR24MK1G

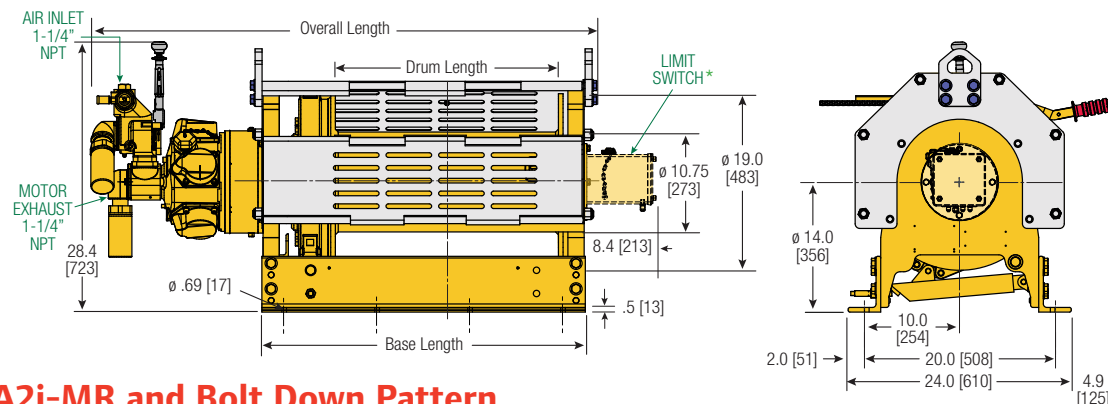
FA2i-MR12MK1G

FA2i-MR24MK1G

with disc and manual brake

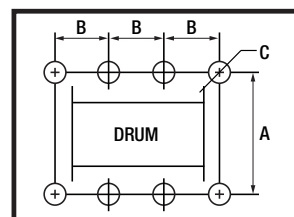
3,180 lbs (1445 kg)

Dimensions shown are inches.
Dimensions in Brackets [] are mm.



Dimensions: FA2i-MR and Bolt Down Pattern

Drum Length		Overall Length		Base Length		Bolt Down "B" Dimension		Total Number of Holes
in	mm	in	mm	in	mm	in	mm	
8	203	36.8	935	18.8	478	7.0	178	6
12	305	40.8	1036	22.8	579	9.0	191	6
16	406	44.8	1138	26.8	681	7.5	159	8
20	508	48.8	1240	30.8	782	9.0	197	8
24	610	52.8	1341	34.8	884	10.0	229	8



Bolt Down Pattern

"A" = 20" [508mm]
"B" = See (Left) chart
"C" = 0.69" [18mm]
Bolt Hole Inside Diameter

NOTE: * Limit Switches standard on -CE versions only.

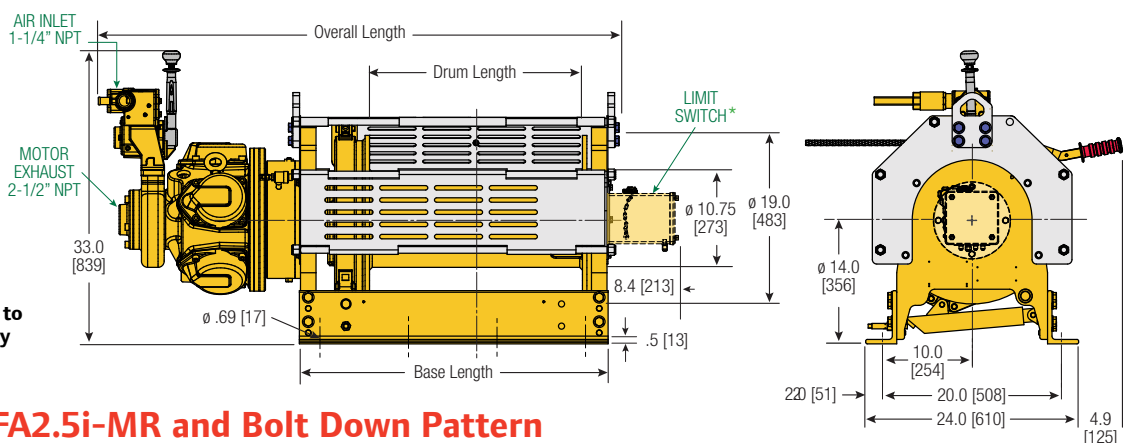
FA2.5i-MR12MK1G

FA2.5i-MR24MK1G

with disc and manual brake

3,180 lbs (1445 kg)

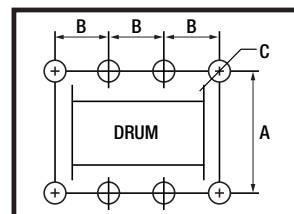
Dimensions shown are inches.
Dimensions in Brackets [] are mm.



Dimensions are subject to change. Contact factory for certified drawings.

Dimensions: FA2.5i-MR and Bolt Down Pattern

Drum Length		Overall Length		Base Length		Bolt Down "B" Dimension		Total Number of Holes
in	mm	in	mm	in	mm	in	mm	
8	203	36	914	18.8	478	7.0	178	6
12	305	46	1168	22.8	579	9.0	191	6
16	406	50	1270	26.8	681	7.5	159	8
20	508	54	1372	30.8	782	9.0	197	8
24	610	58	1473	34.8	884	10.0	229	8



Bolt Down Pattern

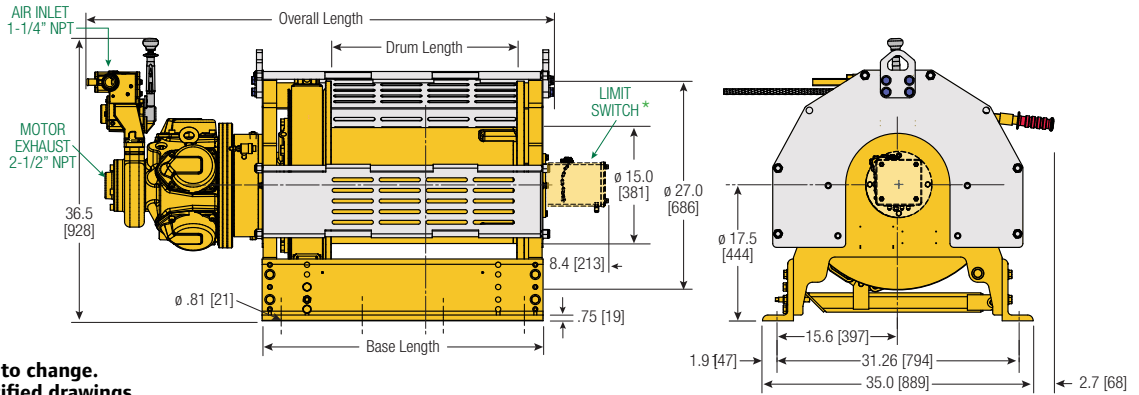
"A" = 20" [508mm]
"B" = See (Left) chart
"C" = 0.69" [18mm]
Bolt Hole Inside Diameter

Force Five Infinity Dual Rated Offshore Man Rider™ Air Winches

Dimension Drawings - FA5i-MR24MK1G

FA5i-MR16MK1G
FA5i-MR24MK1G
 with disc and
 manual brake
6,875 lbs (3125 kg)

Dimensions shown are inches.
 Dimensions in Brackets []
 are mm.

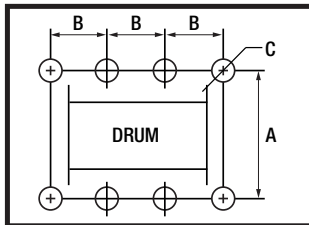


Dimensions are subject to change.
 Contact factory for certified drawings.

Dimensions: FA5i-MR and Bolt Down Pattern

Drum Length		Overall Length		Base Length		Bolt Down "B" Dimension		Total Number of Holes
in	mm	Drum & Disc Brakes	in mm	Drum & Disc Brakes	in mm	Drum & Disc Brakes	in mm	Drum & Disc Brakes
12	305	47.6	1209	24.3	617	7.5	191	6
16	406	51.6	1311	28.3	719	9.0	191	6
20	508	55.6	1412	32.3	820	10.0	159	8
24	610	59.6	1514	36.3	922	10.5	197	8
30	762	65.6	1666	42.3	1074	10.0	229	8
36	914	71.6	1819	48.3	1227	11.0	229	10

NOTE: * Limit Switches standard on -CE versions only.



Bolt Down Pattern

"A" = 31.25" [795mm]
 "B" = See (above) chart
 "C" = 0.81" [21mm]
 Bolt Hole Inside Diameter



FA2.5i-MR12MK1PY

Force Five Infinity

Infinity Option “N4” - ABS & DNV Regulatory Requirements

Infinity Option “N4” — Winch that complies with American Bureau of Shipping “Certification of Drilling Systems”

Why do end-users request compliance with a 3rd party standard?

In certain cases end-users require their winches to be manufactured in compliance with an independent 3rd party standard to insure the equipment provider has undergone a rigorous review of their quality and manufacturing system processes. 3rd party agencies such as American Bureau of Shipping (ABS) and Det Norske Veritas (DNV) have a long history of expertise in overseeing the offshore oil industry and are, by definition, not affiliated or influenced by any equipment manufacturer. The independent standards created by these agencies contain very detailed criteria for equipment design, as well as the mechanical and inspection requirements a unit must possess to receive certification. By choosing an independent agency the end-user gains an increased level of confidence that the equipment purchased will be properly designed and manufactured for its intended use.

What 3rd party options are available?

For your convenience Ingersoll Rand has created option codes to indicate compliance with the two regulations most frequently requested for our winches; “N4” for ABS – “Certification of Drilling Systems” and “N5” for DNV – “OS-E101, Drilling Plant”. Selecting the “N4” or “N5” option code only insures that the winch (as delivered) will meet the requirements of the applicable Standard. Ultimately it is up to the end-user to choose which standard best suits their specific requirements. (Note – Ingersoll Rand will review additional 3rd party standards / requirements upon request.)

What does the “N4” option consist of?

Ingersoll Rand's “N4” option provides a machine that is fully compliant with the design, mechanical, and documentation requirements of ABS Certification of Drilling Systems (July 2009). A general **Type Approval Certificate** is provided confirming ABS's review of the winch's design and mechanical features. In addition a specific ABS Unit Certificate (tracked by the winch's serial number) will be issued upon successful completion of ABS's onsite survey. This survey is required by ABS to document various stages of a winch's manufacture such as charpy testing (where applicable), weld non-destructive examination, material traceability and unit load testing.

Standard Features Matrix

	General Purpose Non Man Rider		General Purpose & Man Rider	
Option code	N4	N4 & CE compliant	N4	N4 & CE compliant
Design factor	5:1	5:1	5:1 General Purpose 8:1 Man Rider	5:1 General Purpose 8:1 Man Rider
Manufactured per	ABS Certification of Drilling Systems	ABS Certification of Drilling Systems & European Machinery Directive / EN14492-1	ABS Certification of Drilling Systems	ABS Certification of Drilling Systems & European Machinery Directive / EN14492-1
Unit Features				
Brakes (as minimum)	1 automatic brake	1 automatic brake	2 automatic brakes	2 automatic brakes
Limit switch	—	Yes	Yes	Yes
Overload device	—	Yes	—	Yes
E-stop	—	Yes	Yes	Yes
Muffler	—	Yes	—	Yes
Drum guard	—	Yes	Yes	Yes
Emergency lower device	—	—	Yes	Yes
Charpy tests	Yes	Yes	Yes	Yes
Design temp (tD)	-20° C	-20° C	-20° C	-20° C
Traceability	Yes	Yes	Yes	Yes
Weld NDE	Yes	Yes	Yes	Yes
Manufactured under survey	Yes	Yes	Yes	Yes
Product design assessment	Yes	Yes	Yes	Yes
Unit Certification Certificate (assigned to equipment's serial number)	Yes	Yes	Yes	Yes
Type Approval Certificate to ABS-CDS	Yes	Yes	Yes	Yes
3rd Party witness of standard load test	Yes	Yes	Yes	Yes
Data book	Yes	Yes	Yes	Yes

*Design Temperature (tD) – 0° C is standard on the N4 option.

Force Five Infinity

Infinity Option “N5” - ABS & DNV Regulatory Requirements

Infinity Option “N5” — Winch that complies with Det Norske Veritas “DNV-OS-E101 Drilling Plant”

Why do end-users request compliance with a 3rd party standard?

In certain cases end-users require their winches to be manufactured in compliance with an independent 3rd party standard to insure the equipment provider has undergone a rigorous review of their quality and manufacturing system processes. 3rd party agencies such as American Bureau of Shipping (ABS) and Det Norske Veritas (DNV) have a long history of expertise in overseeing the offshore oil industry and are, by definition, not affiliated or influenced by any equipment manufacturer. The independent standards created by these agencies contain very detailed criteria for equipment design, as well as the mechanical and inspection requirements a unit must possess to receive certification. By choosing an independent agency the end-user gains an increased level of confidence that the equipment purchased will be properly designed and manufactured for its intended use.

What 3rd party options are available?

For your convenience Ingersoll Rand has created option codes to indicate compliance with the two regulations most frequently requested for our winches; “N4” for ABS – “Certification of Drilling Systems” and “N5” for DNV – “OS-E101, Drilling Plant”. Selecting the “N4” or “N5” option code only insures that the winch (as delivered) will meet the requirements of the applicable Standard. Ultimately it is up to the end-user to choose which standard best suits their specific requirements. (Note - Ingersoll Rand will review additional 3rd party standards / requirements upon request.)

What does the “N5” option consist of?

Ingersoll Rand’s “N5” option provides a machine that is fully compliant with all the design, mechanical, and documentation requirements of Det Norske Veritas (DNV) Offshore Standard OS-E101, Drilling Plant (October 2009). A general **Type Approval Certificate** is provided confirming DNV’s review of the winch’s design and mechanical features. In addition, a specific DNV Product Certificate (tracked by the winch’s serial number) will be issued upon successful completion of DNV’s onsite survey. This survey is required by DNV to document various stages of a winch’s manufacture such as charpy testing (where applicable), weld non-destructive examination, material traceability and unit load testing. Note: a Product Certificate is required by DNV in order to meet its additional requirements for DNV “DRILL”, or “CRANE” Classifications where most drilling operations occur.

Standard Features Matrix

Option code	General Purpose Non Man Rider		General Purpose & Man Rider	
	N5	N5 & CE compliant	N5	N5 & CE compliant
Design factor	5:1	5:1	5:1 General Purpose 8:1 Man Rider	5:1 General Purpose 8:1 Man Rider
Manufactured per	DNV-OS-E101 Drilling Plant	DNV-OS-E101 Drilling Plant & European Machinery Directive / EN14492-1	DNV-OS-E101 Drilling Plant	DNV-OS-E101 Drilling Plant & European Machinery Directive / EN14492-1
Unit Features				
Brakes (as minimum)	1 automatic brake	1 automatic brake	2 automatic brakes	2 automatic brakes
Limit switch	—	Yes	Yes	Yes
Overload device	—	Yes	Yes	Yes
E-stop	—	Yes	Yes	Yes
Muffler	—	Yes	—	Yes
Drum guard	Yes	Yes	Yes	Yes
Emergency lowering device	Yes	Yes	Yes	Yes
Press Roller	—	—	Yes	Yes
Charpy tests	Yes	Yes	Yes	Yes
Design temp (tD)	-20° C	-20° C	-20° C	-20° C
Traceability	Yes	Yes	Yes	Yes
Weld NDE	Yes	Yes	Yes	Yes
Manufactured under survey	Yes	Yes	Yes	Yes
Design review	Yes	Yes	Yes	Yes
Product Certificate (assigned to equipment’s serial number)	Yes	Yes	Yes	Yes
Type Approval Certificate to DNV-OS-E101	Yes	Yes	Yes	Yes
3rd Party witness of standard load test	Yes	Yes	Yes	Yes
Data book	Yes	Yes	Yes	Yes

*Design Temperature (tD) – 0° C is standard on the N5 option.

Force Five Infinity

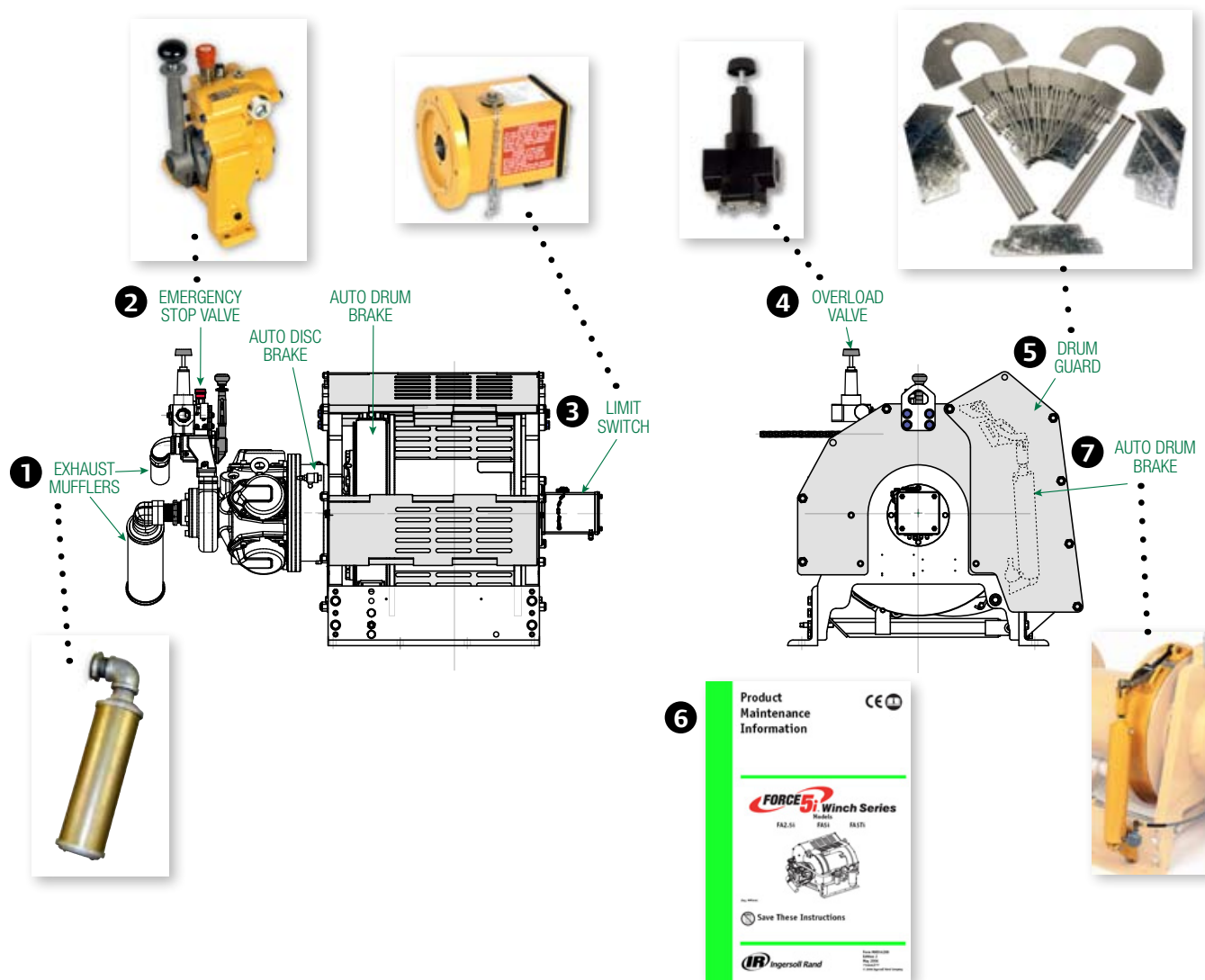
-CE Option Components

Infinity Option “-CE” — Winch that complies with Machinery Directive and EN14492-1

Winches used in countries that are members of the European Union must comply with the requirements of the Machinery Directive and EN14492-1 (for power driven winches) in order to bear the CE  mark.

All winches with the “-CE” will be equipped with the following items:

1. Exhaust mufflers (control and motor exhaust)
2. Emergency stop valve (main air shut off)
3. Limit switches
4. Overload protection
5. Drum guard
6. CE Documentation
7. One automatic brake required – note: automatic brake is not included in CE package price due to the variety of brake configurations available. Please select the automatic brake option and price from the brake section on the applicable Infinity winch brake section and add to the CE package price.



Force Five Infinity

Options Information

A Variety of Options

On a typical How To Order page, these Options will be available to you. Shown are some of the more popular options for clarity. Specify winch by complete model number as illustrated below. Add options in the order of their listing. Order accessories separately by part number.

Example: FA7i-24XK220-14GP1

FA 7i - 24 X K 220 - 14GP1



(FA150KGi only)



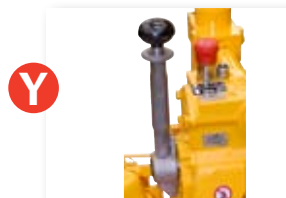
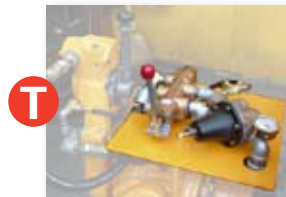
Options

- # = Drum grooving (specify rope size in sixteenths; e.g., 14 = 14/16" or 7/8")
- A = Drum guard with manual rope guide
- B = Extended warranty (Utility & Dual ManRiders)
- B = Winch pedestal base (FA150KGi)
- C1M3 = -20° C ABS
- C2M3 = -20° C DNV
- D = Drum divider flange & additional cable anchor
- E = Construction cage
- G = Drum guard
- H = Stainless steel hose package
- J ⁽¹⁾ = Air Line Accessories
 - J1: Filter, J2: Lubricator, J3: Regulator,
 - J4: Strainer, J5: Muffler, J6: Liquidator
- K = Stowage valve kit installed on winch
- L = Drum Locking Pin
- M1 = Material Traceability per DIN 50049/EN10204 Para 2.2 "Typicals"
- M2 = Material Traceability per DIN 50049/EN10204 Para 3.1b actuals per product as purchased
- M3 = Material Traceability per DIN 50049/EN10204 Para 3.1b actuals per product as delivered in final condition
- N4 ⁽²⁾ = Manufactured under ABS survey
- N5 ⁽²⁾ = Manufactured under DNV survey
- P = Marine 812 finish paint
- P1 = Marine 812-X paint system
- P2 = Marine 812-X paint system - isocyanate free
- R = Emergency lowering system (2 liter bottle)
- Q = Adjustable Accu-Spool™
- S = Rotary limit switch (upper and lower)
- T = Tensioning manifold
- U = Underwound wire rope takeoff
- V = Press Roller
- W1 = ABS witness test
- W2 = DNV witness test
- W3 = LRS witness test
- W4 = Client witness of load test
- Y = Overload protection with E-Stop provided on lever throttle

-CE = Compliance with the European Machinery Directive and EN14492-1 for power driven winches

(1) See page 34 for Air Line Accessories

(2) For N4 and N5 (FA150KGi) refer to pages 21 and (Utility and Dual Rated ManRiders) pages 27 & 28.



Force Five Infinity

Electric-Over-Air Pendant Control System

This updated remote control allows unlimited distance between the operator and winch or hoist without the excessive pressure drops, quick exhaust valves and resultant delays found in air control lines. On pendant controls, dialing-in an electrical setting determines the speed. Push buttons provide pay-in or pay-out. For variable speed control, the control buttons are depressed and the dial-in knob provides proportional control. The joystick lever control provides traditional winch style variable speed in a hand held or wall mounted control box.

Standard Features

- Portable, easy to hold control pendant
- NEMA 4 control box and pendant
- Holding down the control button and turning the Dial-In control provides variable speed
- Automatic return-to-center when joystick is released
- Emergency stop button on control enclosure
- Unlimited control length
- Requires pilot control valve chest for field retrofit
- Adaptable to most winch models and Hercu-Link hoists



Optional pendant for secondary local control

Pendant Control



E-Stop
Dial-in speed
control
Control
buttons

E/A-PCS150 shown with
150 ft (46 m) of control cable

Variable speed lever



E-stop

Joystick lever type control

Force Five Infinity

Adjustable Accu-Spool™ Level Winds

Features

- Accu-Spool™ replaces the need for conventional level winding systems
- Available as optional equipment for Ingersoll Rand Infinity* winch series
- Pressure activated sensor drive is self adjusting eliminating the wear and timing issues inherent in diamond screw designs
- System compensates for fleet angles between 1½° to 26°
- Heavy duty radial piston drive motor
- Fully enclosed oil bath gearbox
- Precision cut rack and pinion drive assembly
- Field adjustable to accommodate a variety of wire rope take-off angles
- Configures for both overwound and underwound wire rope take-off
- Accepts a range of wire rope sizes without any adjustments to system
- Manual override of controls for no-load spooling
- Promotes uniform and even spooling of wire rope
- Reduces bird nesting and associated problems such as crushing and abrasion

Options not available:

- Drum divider flange - D
- Tensioning manifold - T
- Tall flange drums - T

*NOTE: Not available for FA150KGi models

Also available:

- Options:
 - Drum guard with manual rope guide - A
 - Accu-Spool Guarding
 - Slack rope detector - S
 - Press Roller - V
- Special wire rope take-off angles beyond range shown on chart on the following page.
- Non-standard drum lengths
- Factory installed Accu-Spool™ for non-Force 5i™ Infinity series winches
- Hydraulic or electric versions
- Field retrofit kits for all winches including Classic series and non-Ingersoll Rand manufactured winches
- CE versions for compliance with European Machinery Directive
- Custom paint coating systems
- Cold weather versions
- Special Client required testing or documentation requirements
- Guideline/Podline models

Mechanical Details



Force Five Infinity

Adjustable Accu-Spool™ Level Winds

How To Order

- Begin with the base model driver and pricing of the Force Five Infinity series winch you have selected.

NOTE: *manual drum brakes are not available with adjustable Accu-Spool™ level wind.

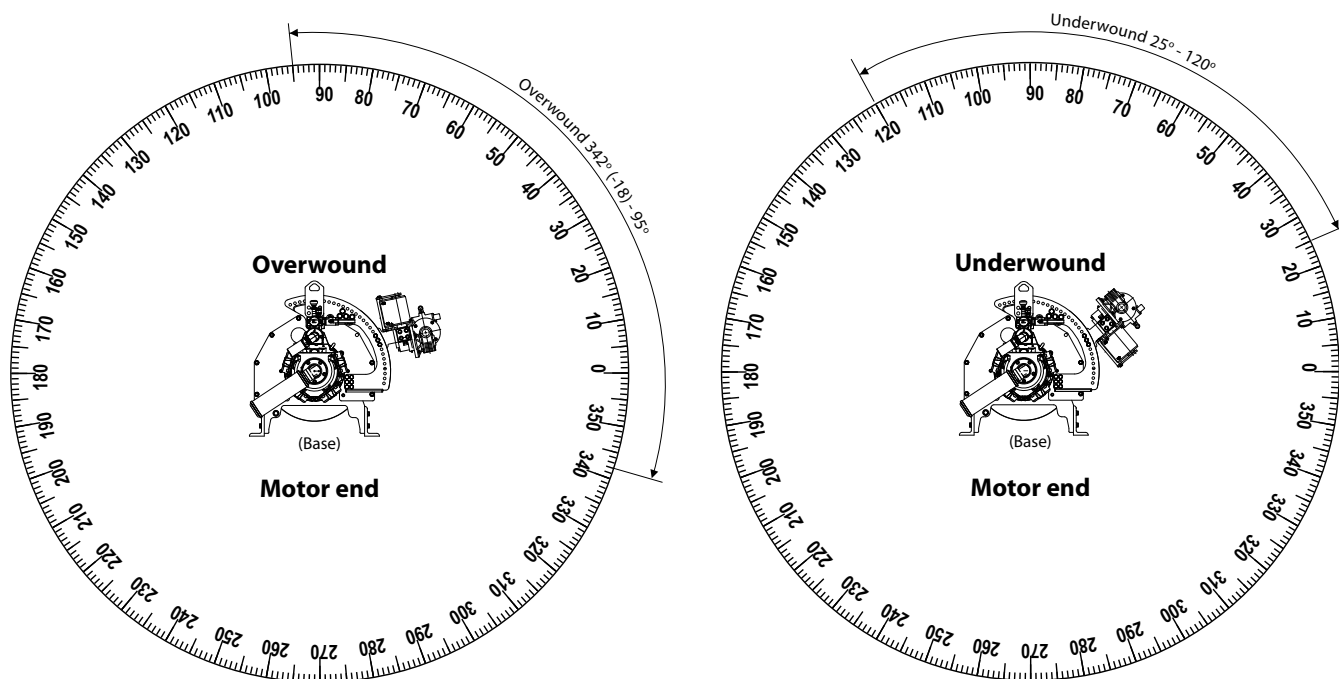
- Add the model driver option code: "Q" to the your winch model.

NOTE: If the desired wire rope take-off angle is provided at time of an order the adjustable Accu-Spool™ will be preset for this angle prior to shipment. Otherwise the setting will be at the discretion of the factory.

- *To prevent inadvertent contact with moving parts only automatic brakes are available on adjustable Accu-Spool™ level winds.

- ** Not all standard Force Five Infinity series winch options are compatible with the Accu-Spool™ level wind due to mechanical or regulatory issues.

Adjustable Accu-Spool™ wire rope take-off range



Force Five Infinity Accessories

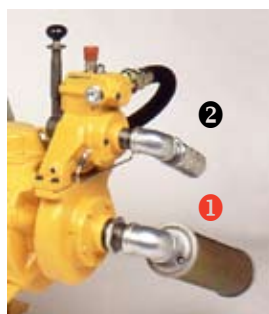
Air Line Accessories

Model	Filter driver J1		Lubricator driver J2		Regulator J3		Regulator Only	Gauge Only
	Part #	Inlet size	Part #	Inlet size	Regulator w/Gauge ⁽¹⁾	Inlet size		
FA2i	F35461-410	1"	L36461-110	1"	382-35597	1"	R37561-100	104502
FA2.5i	F35581-410	1-1/2"	L36581-110	1-1/2"	382-35598	1-1/2"	R37581-100	104502
FA5i	F35581-410	1-1/2"	L36581-110	1-1/2"	382-35598	1-1/2"	R37581-100	104502
FA5Ti	F35581-410	1-1/2"	L36581-110	1-1/2"	382-35598	1-1/2"	R37581-100	104502
FA7i	F35581-410	1-1/2"	L36581-110	1-1/2"	382-35598	1-1/2"	R37581-100	104502
FA7Ti	F35581-410	1-1/2"	L36581-110	1-1/2"	382-35598	1-1/2"	R37581-100	104502
FA10i	F35581-410	1-1/2"	L36581-110	1-1/2"	382-35598	1-1/2"	R37581-100	104502
FA7Ti-GL42	F35581-410	1-1/2"	L36581-110	1-1/2"	382-35598	1-1/2"	R37581-100	104502
FA7Ti-PL42	F35581-410	1-1/2"	L36581-110	1-1/2"	382-35598	1-1/2"	R37581-100	104502
FA150KGi-MR	F35561-411	1"	L36561-100	1"	N/A	1"	R37561-100	43806249

Continued

Model	Strainer J4		Muffler J5 *		Liquidator J6	
	Part #	Inlet size	Kit #	Part #	Inlet size	Part #
FA2i	HU-A267AT	1"	382-29922 ⁽²⁾ 382-36314 ^{(3) (4)}	52465 (2 per kit) 52465 (2 per kit)	1-1/4" 1-1/4"	— Design Required —
FA2.5i	K4U-A267AT	1-1/4"	24375 ⁽⁵⁾	50594 ⁽¹⁾ 52472 ⁽²⁾	2" 1-1/2"	8834-W1-000 2"
FA5i	K4U-A267AT	1-1/4"	24375 ⁽⁵⁾	50594 ⁽¹⁾ 52472 ⁽²⁾	2" 1-1/2"	8834-W1-000 2"
FA5Ti	K4U-A267AT	1-1/4"	24375 ⁽⁵⁾	50594 ⁽¹⁾ 52472 ⁽²⁾	2" 1-1/2"	8834-W1-000 2"
FA7i	K4U-A267AT	1-1/4"	24375 ⁽⁵⁾	50594 ⁽¹⁾ 52472 ⁽²⁾	2" 1-1/2"	8834-W1-000 2"
FA7Ti	K4U-A267AT	1-1/4"	24375 ⁽⁵⁾	50594 ⁽¹⁾ 52472 ⁽²⁾	2" 1-1/2"	8834-W1-000 2"
FA10i	K4U-A267AT	1-1/4"	24375 ⁽⁵⁾	50594 ⁽¹⁾ 52472 ⁽²⁾	2" 1-1/2"	8834-W1-000 2"
FA7Ti-GL42	K4U-A267AT	1-1/4"	24375 ⁽⁵⁾	50594 ⁽¹⁾ 52472 ⁽²⁾	2" 1-1/2"	8834-W1-000 2"
FA7Ti-PL42	K4U-A267AT	1-1/4"	24375 ⁽⁵⁾	50594 ⁽¹⁾ 52472 ⁽²⁾	2" 1-1/2"	8834-W1-000 2"
FA150KGi-MR	— Contact Factory —			52104	3/4"	— Contact Factory —

* Standard on -E models • (1) All Regulators "J3" options ship with a gauge installed • (2) Standard throttle lever • (3) 3XX remote pilot pendent
(4) 4XX remote pilot lever throttle • (5) Fits all throttle options



Control Exhaust (top) and Motor Exhaust (bottom)



Lubricator, Regulator, Filter

NOTE: For protection during shipment and due to the wide range of installation variables the air line accessories are not installed on the units at the factory. All "J" accessories are shipped loose for client installation. While no mounting hardware is supplied to attached accessories to the winch some basic fittings are included to facilitate assembly of the selected "J" option accessories to one another.

Force Five Infinity

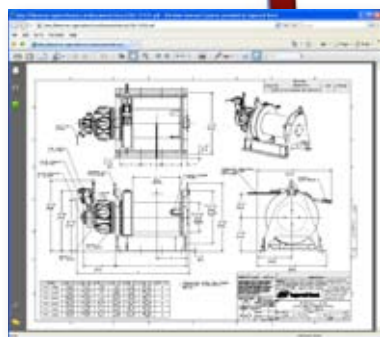
Tech Tips and Drawings

Technical support is an integral part of the Total System Solution philosophy that Ingersoll Rand is dedicated to providing. The following pages contain useful technical information to assist in the selection of high capacity hoists and winches.

For regular updates and additions, please go to www.ingersollrandproducts.com.

Select your global region. Select Products & Services > Lifting/Material Handling > Winches > Winch Selection Support for:

- **Drum Capacity Estimator** program: Plug in your numbers to determine the amount of wire rope a given size drum can hold.
- **Fleet Angle Calculator:** Distance from winch drum to sheave.
- **Horizontal Load Reversing Capacity Estimator:** Calculates length of drum required to move a load a given distance.
- **Winch & Hoist Checklist:** Interactive checklist designed to gather information to determine your material handling needs.
- **Winch and Hoist Options:** Detailed descriptions and benefits of various options for Ingersoll Rand hoists and winches
- **Winch and Hoist Solutions:** Overviews and photos of engineered custom products not found in this catalog
- **Wire Rope Selection:** Wire rope recommendations



- **Drawings:** Outline dimensional drawings for many specific models are shown, including models with all options required by the European Machinery Directive; - suffix “-CE” option code *on their product family pages*.

For instance, for Force Five Infinity Winch Drawings, select Winches > Air Winches > Force 5i™ Infinity Winch Series. Scroll down to the Document Library and select the Outline Drawing tab.

Please contact Ingersoll Rand Tech Support at (253) 398-3900 or email WinchandHoistSolutions.com if a drawing you need is not listed.

Force Five Infinity

Warranty Information

Ingersoll Rand Limited Warranty

Ingersoll Rand Company ("IR") warrants to the original user its material handling products ("Products") to be free of defects in material and workmanship for a period of one year from the date of purchase. IR will, at its option either (1) repair, without cost, any Product found to be defective, including parts and labor charges, or (2) replace such Products or refund the purchase price, less a reasonable allowance for depreciation, in exchange for the Product. Repairs or replacements are warranted for the remainder of the original warranty.

If any Product proves defective within its original one-year warranty period, it should be returned to any Authorized Product Service Distributor, transportation prepaid with proof of purchase or warranty card. This warranty does not apply to Products which IR has determined to have been misused or abused, improperly maintained by the user, or where the malfunction or defect can be attributed to the use of non-genuine IR repair parts.

IR MAKES NO OTHER WARRANTY, CONDITION OR REPRESENTATION OF ANY KIND WHATSOEVER, EXPRESSED OR IMPLIED, STATUTORY OR OTHERWISE, AND ALL IMPLIED WARRANTIES AND CONDITIONS RELATING TO MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE HEREBY DISCLAIMED.

IR's maximum liability is limited to the purchase price of the Product and in no event shall IR be liable for any consequential, indirect incidental or special damages of any nature arising from the sale or use of the Product, whether in contract, tort or otherwise.

Note: Some states do not allow limitations on incidental or consequential damages, so that the above limitations may not apply to you. This warranty gives you specific legal rights and you may also have other rights which may vary from state to state.

Fulcrum series electric winch, product code 405-002: 2 year warranty.

Winch Checklist

Distributor _____ End User _____
 Contact Name _____ Phone/Email _____

Application Description

Equipment Type: ☐ Drum Winch
 Application: ☐ Pulling ☐ Lifting ☐ Dedicated Man-Riding ☐ Dual (Utility Lifting & Man-Riding)
 Capacity: _____ ☐ lbs ☐ kg ☐ metric tons ☐ US tons
 Distance: _____ ☐ ft ☐ meters Line Speed: _____ ☐ fpm ☐ m/min
 Application Notes: _____

Power Supply & Controls

☐ Air Pressure: _____ ☐ psi ☐ bar & Flow Capacity: _____ ☐ cfm ☐ m3/min
 Control Type: ☐ Local Throttle ☐ Remote Full Flow Throttle ☐ Remote Pilot Pendant ☐ Pendant ☐ Electric-over-Air ☐ Customer-Supplied
☐ Elec Voltage: _____ ☐ VAC-3 ϕ ☐ VAC-1 ϕ ☐ VDC & Current Capacity: _____ amps
 Control Type: ☐ Local (Enclosure Door-Mounted Pushbutton) ☐ Pendant ☐ Wall Mount
☐ Remote Control ☐ Customer-Supplied
☐ Hyd Pressure: _____ ☐ psi ☐ bar & Flow Capacity: _____ ☐ gpm ☐ L/min
 Control Type: ☐ Local Throttle ☐ Remote Throttle ☐ Customer-Supplied
 Controls Distance from Equipment (if applicable): _____ ☐ ft ☐ meters

Brakes & Auxiliary Holding Devices

☐ Manual Band ☐ Auto Band ☐ Auto Disc ☐ Manual Drum Locking Pin ☐ Manual Pawl & Ratchet ☐ Auto Pawl & Ratchet

Wire Rope

Diameter: _____ ☐ inch ☐ mm
 Type: ☐ Steel ☐ Stainless ☐ Galvanized ☐ Synthetic ☐ Factory-Spoiled ☐ Customer-Supplied
 Construction Requirements: _____
 Length: _____ ☐ ft ☐ meters End Attachments: _____
 Take-Off Angle (Drum Winch Only): _____

Equipment Options

General: ☐ Limit Switch ☐ Overload Limiter ☐ Low Temperature (Specify) ☐ EC Compliance
☐ Traceability Requirements (Specify) ☐ Type Approval (Specify)
 Winches: ☐ Drum Guard ☐ Press Roller ☐ Drum Divider ☐ Drum Grooving ☐ Construction Cage ☐ Free-Spool Clutch
☐ Horizontal Load Reversing ☐ Manual Level Wind ☐ Underwound ☐ Automatic Level Wind (Accu-Spool™)
☐ Constant Tensioning Manifold (excluding Electric) ☐ Slack Wire Protection ☐ Skid Frame
 Air: ☐ Filter ☐ Lubricator ☐ Regulator ☐ Liquidator ☐ Muffler(s)
 Elec: ☐ Dual Speed Motor ☐ Explosion-Proof (Specify) ☐ IEEE45/Marine Duty ☐ Motor Heater
☐ Variable Frequency Drive ☐ Variable Frequency Drive-Ready
 Hyd: ☐ HPU (Specify) ☐ Filtration (Specify)
 Equipment Option Notes: _____

Paint

☐ Standard ☐ Sandblast w/ Zinc Primer Only ☐ Marine 812 ☐ Marine 812-X
 Paint/Coating Notes: _____

Service Options

☐ Extended Warranty ☐ Spare Parts Kit ☐ Service Start-Up/Training Support

Additional Information

Winch Series Under Consideration: ☐ Force 5 ☐ Force 5 Infinity ☐ Force 5 3rd Generation
☐ Liftstar/Pullstar ☐ Fulcrum ☐ BU ☐ EU ☐ EBT ☐ Other, Specify: _____

Replacing Equipment (Make, Model): _____
 Size Restrictions: _____ ☐ inch ☐ mm
 Duty Cycle: _____ ☐ min/hr ☐ hrs/day ☐ %
 Ambient Conditions (Temperature, Humidity, Elevation, etc): _____

Serving: _____ Industry
 Additional Notes: _____

Notes

Office and distributors in principal cities throughout the world. Contact the nearest Ingersoll Rand office for the name and address of the distributor in your country or write to: Ingersoll Rand, 20017 72nd Avenue South, Kent, WA 98032 USA.

United States Regional Sales Office

For Order Entry and Order Status: Ingersoll Rand Customer Care

Phone: 866-207-6923 (Toll Free)
Or 800-IR-HOIST
Fax: 615-874-2525

For Technical Support: Client Services

20017 72nd Avenue South, Kent, WA 98032
Phone: 253-398-3900
Fax: 253-398-3475
E-mail: WinchandHoistSolutions@irco.com

International

Ingersoll Rand Canada Inc.

51 Worcester Road, Toronto, Ontario M9W 4K2
Phone: 877-924-7435
Order Desk: 877-924-7435
Fax: 416-213-4506
(888) 422-2258 (Toll free)

Europe, Middle East and Africa Ingersoll Rand Winch and Hoist Solutions Douai Operations

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59450 SIN LE NOBLE, France
Phone: 33-3-27-93-08-08
Fax: 33-3-27-93-08-19
E-mail: dou_irep@eu.irco.com

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Industrial Puente de Vigas
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Fax: 52 (55) 55 65 30 72
E-mail: mexicot&h@irco.com

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Fax: 55-11-2109 . 8998

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42 Benoi Road, Jurong, Singapore 629903
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Fax: 65-6862-1373

China Ingersoll Rand Co.

11F, Tower B, City Center of Shanghai,
100 Zun Yi Road,
Shanghai, 200051, P.R.C.
Phone: 86-21-2208 1580
Fax: 86-21-6237 1993

Authorized Distributor:



Ingersoll Rand Industrial Technologies provides products, services and solutions that enhance our customers' energy efficiency, productivity and operations. Our diverse and innovative products range from complete compressed air systems, tools and pumps to material and fluid handling systems. We also enhance productivity through solutions created by Club Car®, the global leader in golf and utility vehicles for businesses and individuals.