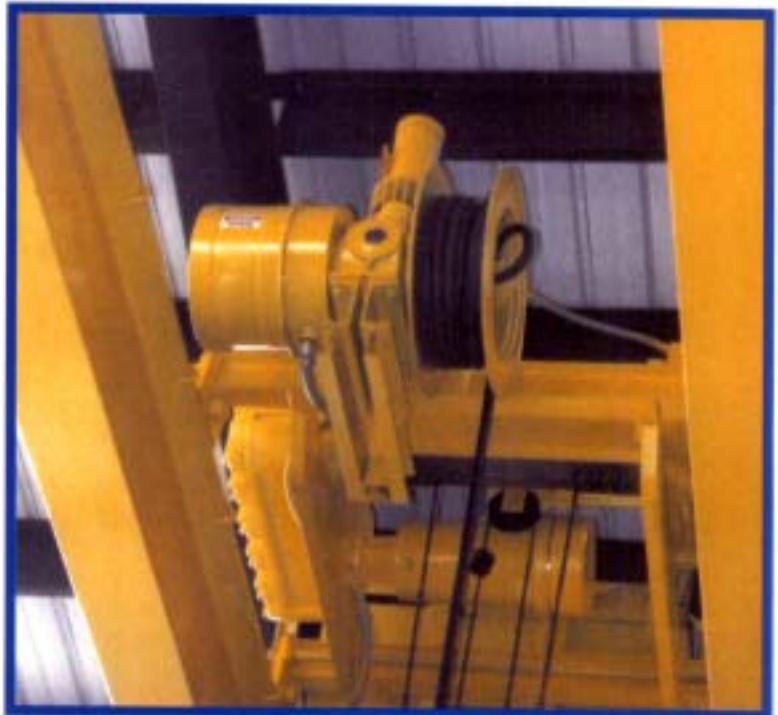


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Cable Reels ♦ Conductor Bar ♦ Festoon ♦ Pendants ♦ Drives ♦ Slip Rings

Solutions From A Single Source

Magnetic Coupler Motor Driven Cable Reels



For the Electrification of:

- Port Cranes
- Iron and Steel Mill Equipment
- Bulk Material Handling Equipment
- Yard Equipment
- Mining Equipment



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TABLE OF CONTENTS

MAGNET-DUTY MAGNETIC COUPLER REELS

"The revolution in steel mill reels"

| | |
|---|------------|
| Basic Components of a Motor Driven Reel..... | 1 |
| Cable Specifications..... | 3 |
| Dimensional Information Type BNA2..... | 5 |
| Dimensional Information Type BNA3..... | 6 |
| Magnetic Coupler Drive..... | 2-3 |
| Ordering Instructions..... | 3 |
| Request for Quote Sheet..... | 7-8 |
| Selection Chart..... | 4 |
| Visit Delachaux Worldwide..... | 9 |

The Magnetic Coupler operates on the principles of lagging magnetic values with no direct contact between the driving and the driven elements. This principle is commonly used on mechanisms requiring extreme consistency, reliability, and service-free operation.

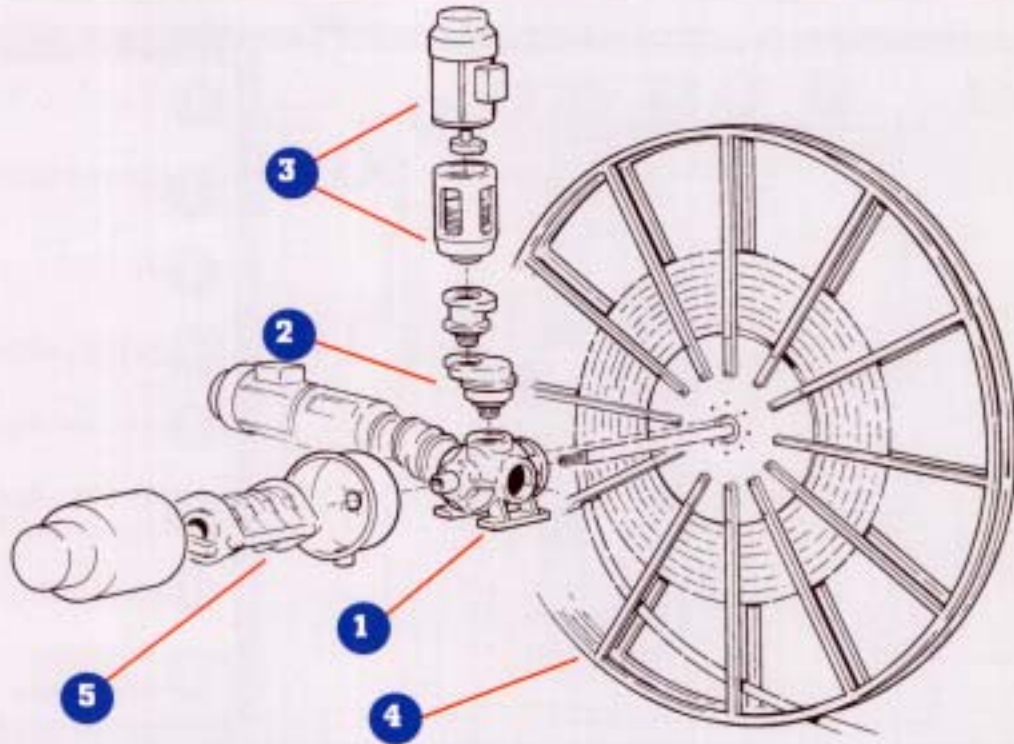
In other words, it's ideal for your mill.

The remarkable stability of the permanent magnetic coupler's torque during pay-out and take-up makes this unit ideal for winding flexible electrical cable and hoses. All critical components are completely sealed and protected from the elements.

The best part is that you will never change a spring again.

MOTOR DRIVEN REEL COMPONENTS

BASIC COMPONENTS OF A MOTOR-DRIVEN REEL



1 MAIN GEARBOX UNIT

2 sizes

2 SECONDARY GEARBOXES

3 different models

3 DRIVE UNIT

Common Electric Motor
and the magnetic coupler
2 models (1 HP and 2 HP)

4 SPOOL

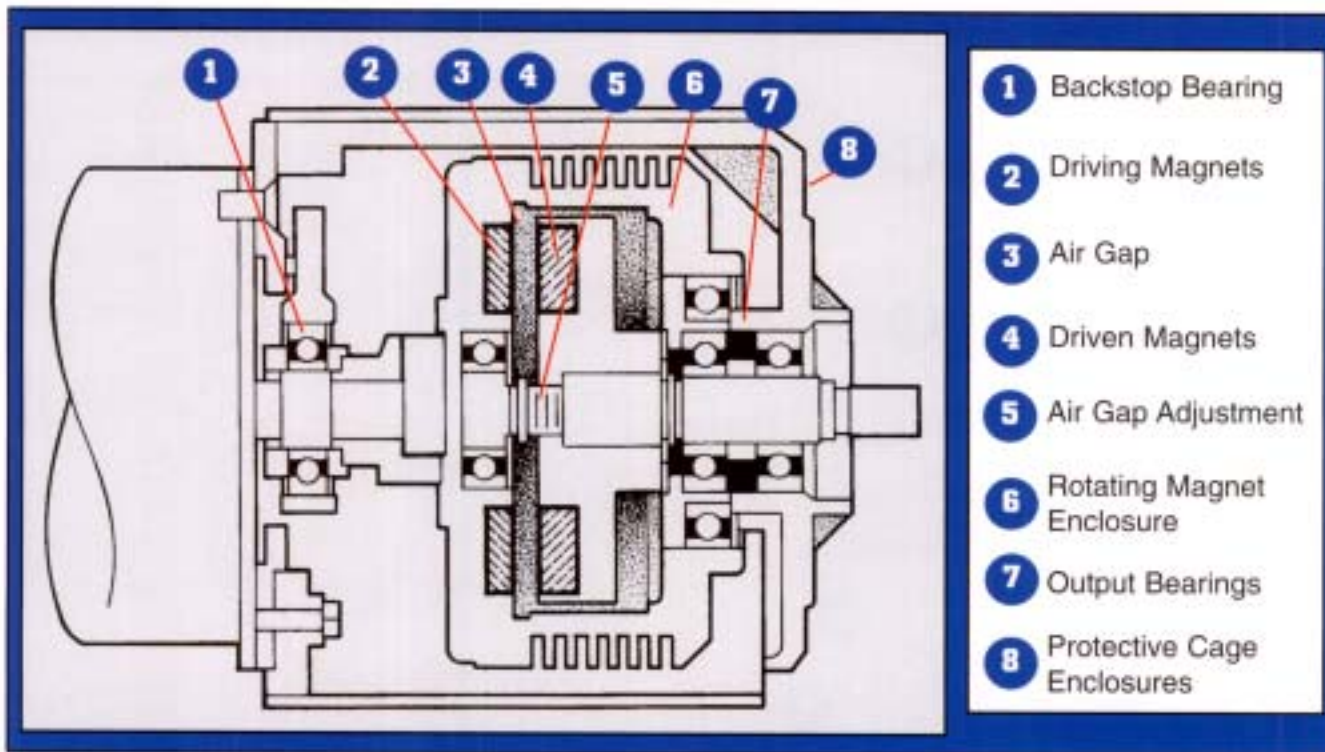
3 types and an extended
range of options

5 SLIP RING ASSEMBLY

Heavy duty,
200 / 400 amps,
2 conductor,
Self Contained

MAGNETIC COUPLER DRIVE

OPERATING PRINCIPLES OF THE MAGNETIC COUPLER DRIVE



IER™ Magnetic Coupler can be driven by any substantial constant speed power input (normally a 1725 RPM electric motor).

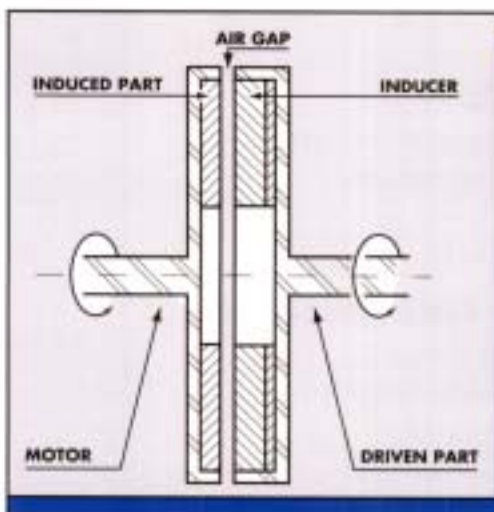
The power input turns the *driving magnet* (#2) at motor speed.

An *air gap* (#3) separates the driving magnet from the *driven magnets* (#4) spool side.

The speed differential (slip RPM) between the electric motor shaft (driving magnet) and the cable reel spool (driven magnet) is accommodated by the hysteresis coupler using an air gap with the resulting magnetic coupler as the slipping interface.

The magnets within the coupler are all permanent. Therefore, the coupler requires no external power or controls.

The rating of the coupler is continuous and it can be 100% stalled, with heat dissipated by the *rotating magnet enclosure* (#6). The output torque can be changed by adjustment of the air gap. The *one way bearing* (#1) on the input side allows the magnets to become a brake if the motor is shut off.



MAGNETIC COUPLER DRIVE

MAGNETIC COUPLER DRIVE FEATURES



Thanks to its brilliantly simple operating principles, the IER™ Magnetic Coupler Drive is among the most economical of all drive systems.

Never change a spring again.

- Smooth consistent torque assures maximum cable life
- Compact design requires minimal space
- Continuous 100% stall duty rating
- No loss of cable tension during power outages
- Critical components are completely sealed and protected from the elements

2-CONDUCTOR CABLE SPECIFICATIONS

Reel selection requires that active length of cable and the appropriate wire gauge has been determined. All reel selections shown on page 4 are based on the cable specifications shown below. If you plan to use a cable that has different weight or diameter, please consult the factory or your local representative.

| NO OF COND | AWG SIZE | COND STRAND | NOMINAL INSIDE THICKNESS | | NOMINAL OUTSIDE DIAMETER | | CURRENT AMPS ** | WEIGHT LBS/M |
|------------|----------|-------------|--------------------------|------|--------------------------|-------|-----------------|--------------|
| | | | INCHES | MM | INCHES | MM | | |
| 2 | 8 | 133 | 0.060 | 1.52 | 0.81 | 20.57 | 72 | 425 |
| 2 | 6 | 259 | 0.060 | 1.52 | 0.93 | 23.62 | 95 | 580 |
| 2 | 4 | 259 | 0.060 | 1.52 | 1.08 | 27.43 | 127 | 820 |
| 2 | 3 | 329 | 0.060 | 1.52 | 1.17 | 29.72 | 145 | 980 |
| 2 | 2 | 259 | 0.060 | 1.52 | 1.27 | 32.26 | 167 | 1170 |
| 2 | 1 | 259 | 0.080 | 2.03 | 1.44 | 36.58 | 191 | 1490 |
| 2 | 1/0 | 259 | 0.080 | 2.03 | 1.52 | 38.61 | 217 | 1710 |
| 2 | 2/0 | 259 | 0.080 | 2.03 | 1.65 | 41.91 | 250 | 1880 |

ORDERING INSTRUCTIONS

Determine active length of cable. Go to selection chart on page 6 to find proper reel. All reels shown are based on a 460/3/60 power supply. *If 230 volt DC power supply is required, consult the factory.* Reels with up to #2 AWG cable are supplied with a two-conductor, 200 amp, 600 volt rated slip rings. Reels for #1 and #1/0 AWG sizes are supplied with 400 amp, 600 volt rated slip rings. All slip rings are double brushed and of self-contained (one-piece) construction.

An additional 12 feet of cable (beyond total required cable length) is necessary for reel connections and safety wraps.

MAGNETIC COUPLER REELS FOR MAGNET DUTY

SELECTION CHART

The magnetic coupler drive was developed for high duty cycle applications. The drive incorporates a standard asynchronous motor coupled to the magnetic coupler.

Some models will use a secondary gearbox between the coupler and the main gearbox. Certain models will use a dual motor configuration. On all models, motor location preference will need to be indicated by drive unit position numbers shown on dimensional pages 5 and 6.

If 230 volt DC motors are used, an additional 3.25" will need to be added to 1 HP models, and 5" to 2 HP models. *See dimensional information on pages 5 and 6.*

All selections are based on a lift application.

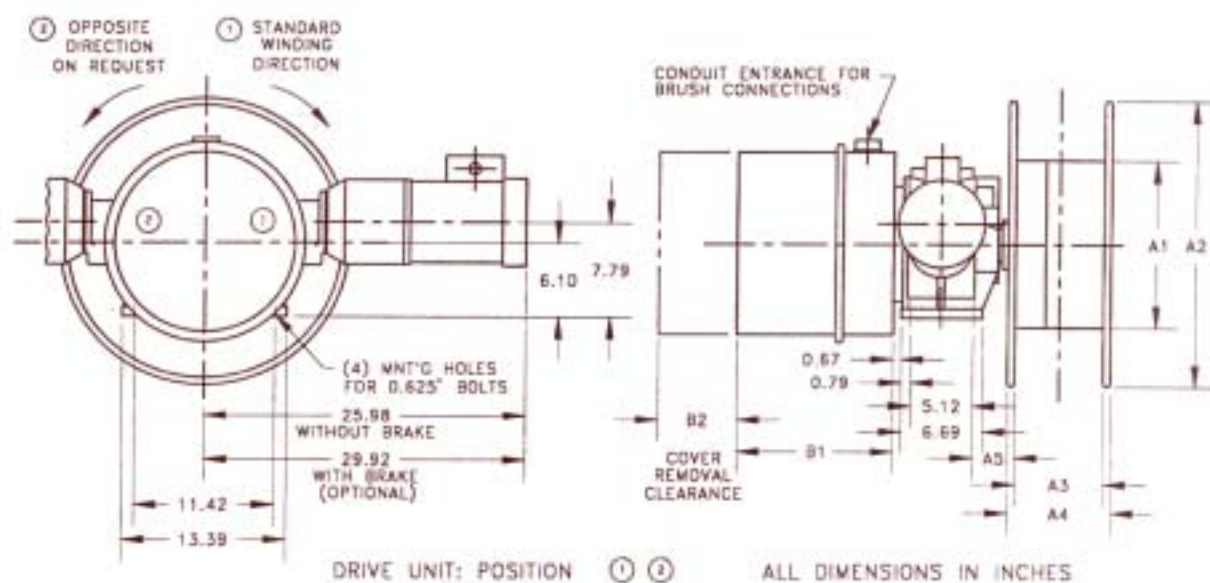
Operating speed is 200 FPM. From zero to full speed in two seconds.

All selections are based on TYPE W cable, 600 volt rated. (See page 3 for details.)

| NO OF COND | AWG Wire Size | Length in feet | Model Number |
|------------|---------------|--------------------------------------|--|
| 2 | 8 | 30' - 140' 160' - 180' | BNA221WO-SL4-D220 BNA212WO-SL5-D220 |
| 2 | 6 | 30' - 90' 100' 110' - 180' | BNA221WO-SL4-D220 BNA241WO-SL5-D220 BNA242WO-SL5-D220 |
| 2 | 4 | 30' - 60' 70' - 80' 90' - 160' | BNA221WO-SL5-D220 BNA222WO-SL5-D220 BNA242WO-SL5-D220 |
| 2 | 2 | 30' - 50' 60' - 100' | BNA241WO-SL5-D240 BNA242WO-SL5-D240 |
| 2 | 2 | 110' - 120' | BNA302C33-SL6-D220 |
| 2 | 1 | 30' 40' - 80' 90' 100' | BNA241WO-SL5-D240 BNA242WO-SL5-D240 BNA302C33-SL5-D220 BNA302C33-SL6-D240 |
| 2 | 1/0 | 30' - 60' 70' - 90' 100' | BNA242WO-SL5-D240 BNA302C33-SL5-D220 BNA302C33-SL6-D240 |

MAGNETIC COUPLER REELS - TYPE BNA 2

DIMENSIONAL INFORMATION



Size and Weight of Semi-Wide Spool

| TYPE SL | 4 | 5 | 6 |
|--------------|-------|-------|-------|
| A1 | 13.78 | 21.65 | 21.65 |
| A2 | 23.63 | 31.50 | 41.34 |
| A3 | 7.28 | 11.82 | 11.82 |
| A4 | 8.46 | 13.40 | 13.40 |
| A5 | 2.36 | 2.36 | 2.36 |
| Dim. A (lbs) | 33.00 | 55.00 | 79.00 |

Reel Weight Less Spool or Slip Ring

| | | |
|--------------|----------|----------|
| TYPE | BNA211WO | BNA212WO |
| | BNA221WO | BNA222WO |
| | BNA231WO | BNA232WO |
| | BNA241WO | BNA242WO |
| | BNA251WO | BNA252WO |
| Dim. C (lbs) | 166.00 | 221.00 |

Slip Ring Enclosure And Cover Removal Clearance Length

| AMPERAGE | NO OF COND. | |
|----------|-------------|---------|
| | 2 | |
| 200 AMP | B1 (B2) | 18 (9) |
| 400 AMP | B1 (B2) | 22 (10) |
| 200 AMP | B (lbs) | 20 |
| 400 AMP | B (lbs) | 31 |

Motor Characteristics

| Type | Power (HP) | Voltage (V) | Frequency (Hz) | Current (A) |
|------|------------|-------------|----------------|-------------|
| W | 1.0 | 230/460 | 60 | 1.7/460V |
| C | 1.0 | 230VDC | 60 | 3.8/230V |

WHEN USING 230VDC MOTOR, PLEASE ADD 3.5' TO MOTOR DIM.

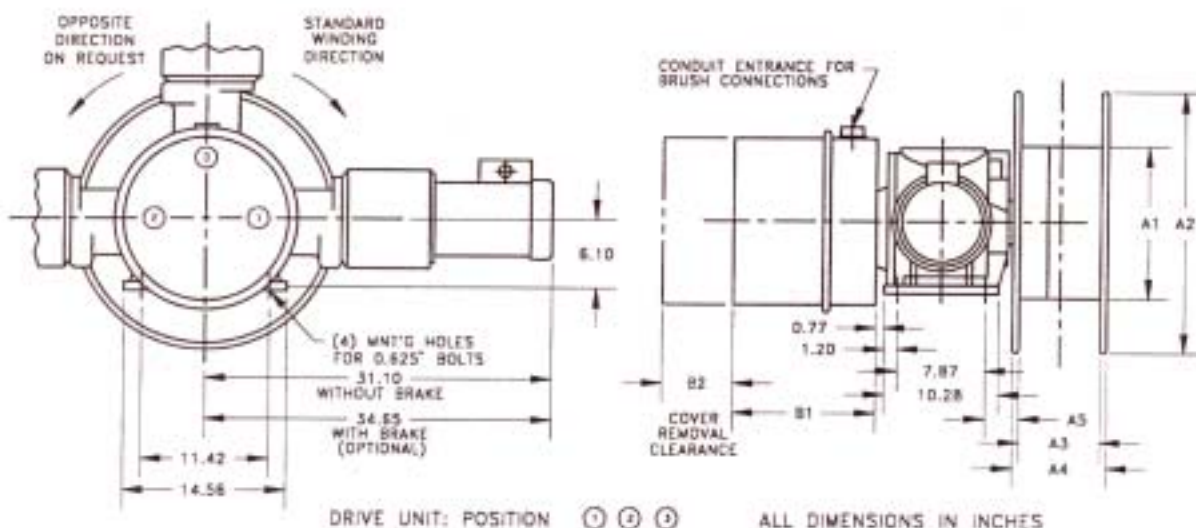
Dim. D = 8.34 (SL4)

Dim. D = 8.14 (SL5)

TOTAL CABLE REEL WEIGHT = A+B+C
TOTAL CABLE REEL LENGTH = A4+B1+D

MAGNETIC COUPLER REELS - TYPE BNA 3

DIMENSIONAL INFORMATION



Size and Weight of Semi-Wide Spool

| TYPE SL | 5 | 6 |
|--------------|-------|-------|
| A1 | 21.65 | 21.65 |
| A2 | 31.50 | 41.34 |
| A3 | 11.82 | 11.82 |
| A4 | 13.40 | 13.40 |
| A5 | 2.36 | 2.36 |
| Dim. A (lbs) | 55.00 | 79.00 |

Reel Weight Less Spool or Slip Ring

| TYPE | BNA301C11 | BNA302C11 | BNA303C11 |
|--------------|-----------|-----------|-----------|
| | BNA301C22 | BNA302C22 | BNA303C22 |
| | BNA301C33 | BNA302C33 | BNA303C33 |
| | BNA301C44 | BNA302C44 | BNA303C44 |
| | BNA301C55 | BNA302C55 | BNA303C55 |
| Dim. C (lbs) | 287 | 397 | 507 |

Slip Ring Enclosure And Cover Removal Clearance Length

| AMPERAGE | NO OF COND. | |
|----------|----------------|------------|
| | | 2 |
| 200 AMP | B1 (B2) | 18 (12) |
| 400 AMP | B1 (B2) | 22 (14.75) |
| 200 AMP | B (lbs) | 20 |
| 400 AMP | B (lbs) | 31 |

Motor Characteristics

| Type | Power (HP) | Voltage (V) | Frequency (Hz) | Current (A) |
|------|------------|-------------|----------------|-------------|
| C | 2 | 230/460 | 60 | 3.1/460V |
| C | 2 | 230VDC | 60 | 7.2/230V |

**WHEN USING 230VDC MOTOR,
PLEASE ADD 5.0" TO MOTOR DIM.**

Dim. D = 11.63

**TOTAL CABLE REEL WEIGHT = A+B+C
TOTAL CABLE REEL LENGTH = A4+B1+D**

MAGNETIC COUPLER REQUEST FOR QUOTE SHEET

MOTOR DRIVEN REEL CUSTOMER CHECKLIST

Date: _____ Salesperson: _____

Required by: _____

Customer: _____ Job #: _____

Qty: _____ Cat #: _____

Phone: _____ Fax: _____

CABLE SPECIFICATIONS

AWG _____ No. of conductors _____ Type _____ Stranding _____

Voltage _____ Diameter _____ Weight (lb./ft.) _____

If composite cable, describe _____

Maximum cable payout length _____ total travel distance or
active cable length of machine _____

(If cable feed point is at the center of total travel distance, maximum cable payout length is equal to 1/2 of the total travel distance of machine)

Note: Total length of cable will include payout length + reel height above cable support surface + 2 dead wraps + length for connections.

Retrieve _____

Lift _____ Active length _____ Total length _____

Stretch _____ % Sag _____

Drag _____

If retrieve, what is the approximate height the reel base will be mounted above the cable support surface _____ ft.?

HOSE SPECIFICATIONS

I.D. _____ O.D. _____ P.S.I. _____ Air/Water _____

Gas _____ Hydraulic _____ Other _____

Machine Total H.P. _____ @ _____ volts.

MAGNETIC COUPLER REQUEST FOR QUOTE SHEET

MOTOR DRIVEN REEL CUSTOMER CHECKLIST, CONT.

Total H.P. working simultaneously _____

Required amperes _____

Duty cycle of machine _____

Travel speed of machine (ft./min.) _____

Acceleration _____ ft./sec.² or time _____ sec.

Does machine coast when power is off? _____

Environmental conditions _____

Operating position of reel _____

Cable guides required? _____ Type _____

Type: Stall torque motor _____ Electro hydraulic _____

Mag coupler _____ Air motor _____

Constant Pull Regulation (open or Closed Loop) _____

Motor voltage _____ Phase _____ Cycles _____

Motor enclosure: Totally enclosed _____ or

Class _____ Div. _____ GRP _____

Other _____

Type of System: Bulk Wrap _____ Monospiral _____

Level Wind _____ Pull & Store _____

Is an enclosure anti-condensation heater & thermostat desired? _____

Voltage _____

Is an external junction box with terminal strips pre-wired to collector ring desired? _____

Paint: Mfg Std. _____ Special Prep _____ Special _____

Cable last wrap limit switch desired? _____

Special construction specifications (describe or furnish) _____

Remarks _____

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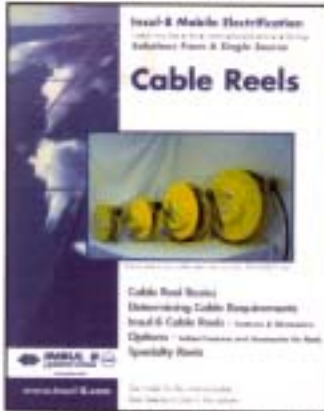
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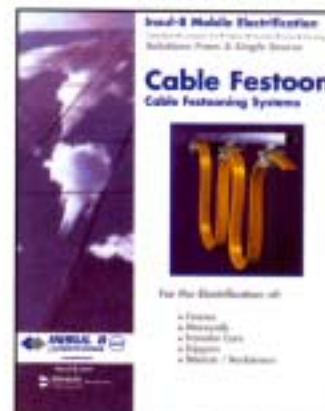
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SLIP RINGS



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